ORDER NO. GAD8609597C7

Service Manual

Portable Stereo Component System

Radio Cassette

RX-CW200F

(Black)

This is the Service Manual for the following areas.

- [X] ···For Asia, Latin America, Middle East and Africa areas.
- [L] ···For Australia.
- [XC] ···For Saudi Arabia.
- [XF] ···For Newzealand.
- [ME] ···For AAFES EUROPE.
- [MF] ···For AAFES PACIFIC.

RX-5235 MECHANISM SERIES

■ SPECIFICATIONS

General:

Power Requirement:	AC; [X] [XC] [ME] [MF]... 110~127/200~220/ 230~250V, 50/60Hz
	[L] [XF].....240V, 50Hz
	Battery; 15V (Ten "D" Size Flashlight Batteries)
	(National UM-1 or equivalent)
	Car Battery; with optional car battery card RP-9550
Power Consumption:	[X] [XC] [ME] [MF]...76W (AC only)
	[L] [XF].....70W (AC only)
Power Output:	150W (75W×2)...PMPO
	36W (18W×2).....RMS (max.)
Speaker:	Woofer; 12cm×12cm AFD Speaker (8Ω)
	Squawker; 5cm PM Dinamic Speaker (6Ω)
	Tweeter; 2cm Ceramic Speaker (1.4kΩ)
Input:	MIC/MIX MIC; sensitivity 1.6mV/ applicable microphone impedance 200~600Ω (φ3.5)
	CD/LINE IN; sensitivity 316mV/48kΩ over
	DC IN; 13.2V
Output:	EXT SP; 8Ω, φ3.5
	HEADPHONES; 32Ω, φ3.5
Dimensions:	Total Size; 660(W)×300(H)×193(D)mm
	Main Unit; 339(W)×245(H)×186(D)mm
	Speaker Box; 165(W)×244(H)×175(D)mm
Weight:	8.4kg without batteries

Radio Section:

Radio Frequency Range:	FM; 88~108MHz
	MW; 530~1605kHz (566~187m)
	SW1; 2.3~7.0MHz (130~42.9m)
	SW2; 7.0~22.0MHz (42.9~13.6m)
Intermediate Frequency:	FM; 10.7MHz
	AM (MW/SW1/SW2); 455kHz
Sensitivity:	FM; 1.3μV/50mW output (−3dB Limit Sens)
	MW; 90μV/m/50mW output
	SW1; 85μV/m/50mW output
	SW2; 7.5μV/50mW output

Tape Deck Section:	**Tape 1**
Frequency Response:	55~15,000Hz (with normal tape)
	55~16,000Hz (with CrO_2 & Metal tape)
Recording System:	AC bias, AC erase
Tape Speed:	4.8cm/s
Track System:	4-track 2-channel stereo recording and playback

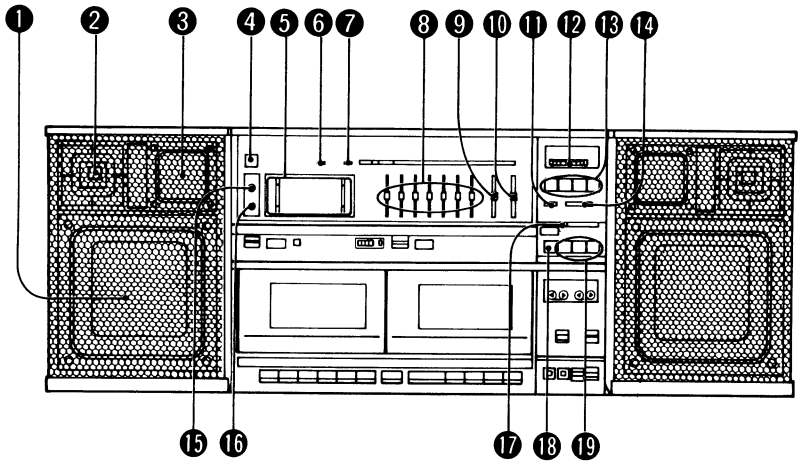
Tape Deck Section:	**Tape 2**
Frequency Response:	55~15,000Hz (with normal tape)
	55~16,000Hz (with CrO_2 & Metal tape)
Tape Speed:	4.8cm/s
Track System:	4-track 2-channel stereo playback

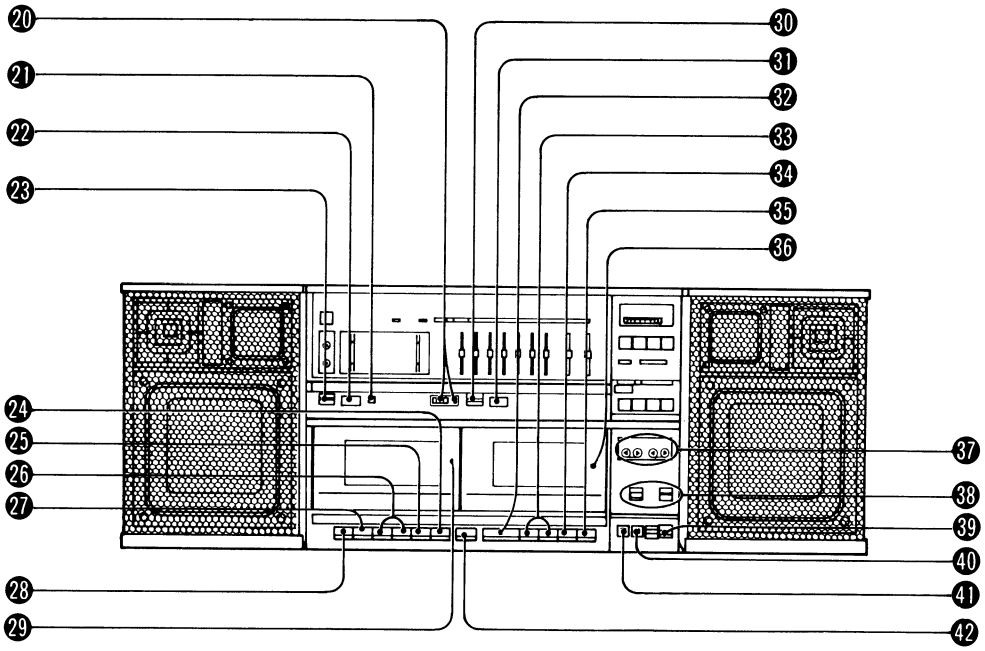
Design and specifications are subject to change without notice.

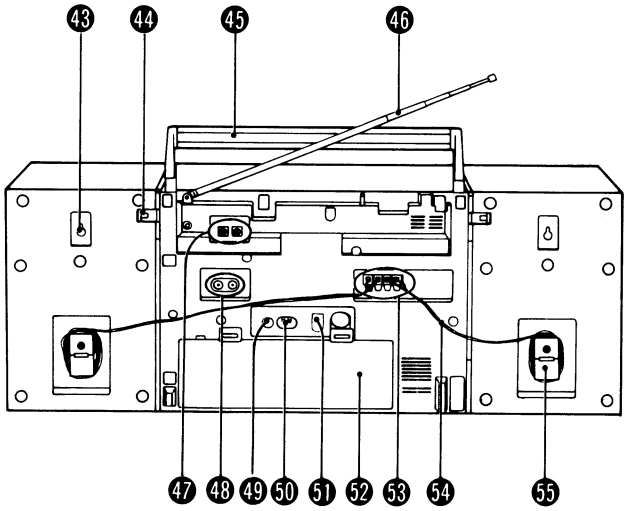
National

Matsushita Electric Trading Co., Ltd.
P.O. Box 288, Central Osaka Japan

LOCATION OF CONTROLS AND COMPONENTS







❶ Speakers (Woofer) 12cm×12cm, 8Ω
❷ Speakers (Tweeter) 2cm×1.4kΩ
❸ Speakers (Squawker) 5cm, 6Ω
❹ Power Switch (POWER)
❺ Spectrum Analyzer (SPECTRUM ANALYZER)
❻ Power/Battery Check Indicator (POWER/BATT)
❼ FM Stereo Indicator (FM STEREO)
❽ Graphic Equalizer/Frequency Distribution Equalizer Controls (GRAPHIC EQUALIZER/F.D. EQ)
❾ Mixing Level Control (MIXING LEVEL)
❿ Balance Control (BALANCE)
⓫ FM Mode Selector/Beat Proof Switch (FM MODE/B.P)
⓬ Tuning Control (TUNING)
⓭ Band Selector (BAND)
⓮ Fine Tuning Control (FINE TUNING)
⓯ Mixing Microphone Jack (MIX.MIC) 1.6mV/200~600Ω φ3.5
⓰ Headphones Jack (PHONES) 32Ω, φ3.5

When using the headphones (EAH-S10, optional), avoid listening to sound for a long period of time at excessive volume levels, which may injure your ears.

⓱ Volume Control (VOLUME)
⓲ Equalizer Mode Selector (EQUALIZER MODE)
⓳ Function Selector (FUNCTION)

TAPE 1 (For Recording and Playback)

⓴ Tape 1 Counter and Reset Button (TAPE 1 COUNTER)
㉑ Built-in Microphone (MIC)
㉒ Direction Button (DIRECTION)
㉓ Reverse Mode Selector (REVERSE MODE)
㉔ Pause Button (❚❚PAUSE)
㉕ Stop/Eject Button (■/▲ STOP/EJECT)
㉖ Fast/Cue Buttons (◀◀·▶▶ FAST/CUE)
㉗ Playback Button (▶PLAY)
㉘ Record Button (● RECORD)
㉙ Cassette Compartment

TAPE 2 (For Playback)

㉚ Reverse Mode Selector (REVERSE MODE)
㉛ Direction Button (DIRECTION)
㉜ Playback Button (▶PLAY)
㉝ Fast/TPS Buttons (◀◀ · ▶▶ FAST TPS)
㉞ Stop/Eject Button (■/▲STOP/EJECT)
㉟ Pause Button (❚❚PAUSE)
㊱ Cassette Compartment

㊲ Direction Indicators (DIRECTION)
㊳ Tape Selectors (TAPE SELECTOR)
㊴ Dubbing Mode Selector (DUBBING MODE)
㊵ Dolby※NR Switch (DOLBY NR)
㊶ Relay Playback Switch (RELAY PLAY)
㊷ One Touch Dubbing Button (ONE TOUCH DUBBING)

㊸ Speaker Wall Mounts
㊹ Speaker Release Levers (RELEASE)
㊺ Detachable Carrying Handle
㊻ Telescopic Antenna
㊼ External Antenna Terminals (FM ANT/SW ANT)
㊽ CD/Line Input Jacks (CD/LINE IN) 316mV/48kΩ
㊾ DC Input Jack [DC IN 13.2V (12–15V)⊖⊙⊕]
㊿ AC Socket (AC IN~)
(51) Voltage Selector (VOLTAGE SELECTOR)
Not provided for the model for 240 V, 50 Hz areas.
(52) Battery Compartment
(53) Speaker Terminals (SPEAKER IMP 8Ω ONLY) φ3.5
(54) Speaker Cables
(55) Speaker Cable Compartments

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Noise reduction system manufactured under license from Dolby Laboratories Licensing Corporation.

CAUTIONS ON DISASSEMBLY AND ASSEMBLY

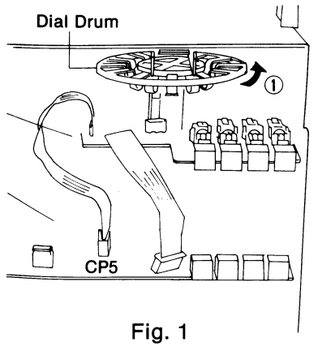


Fig. 1

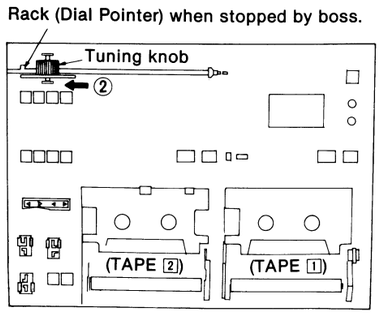


Fig. 2

- Turn the dial drum all the way in the direction of the arrow ①. (Fig. 1)
- Turn the tuning knob in the direction of the arrow ② until the rack (dial pointer) is stopped by the boss. (Fig. 2)

DISASSEMBLY INSTRUCTIONS

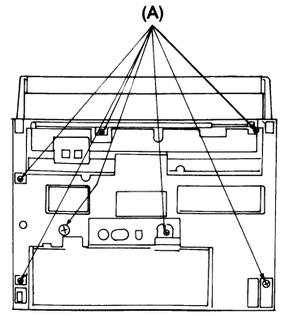


Fig. 1

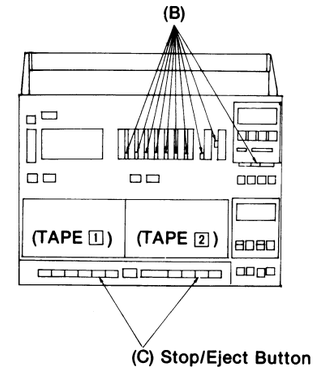


Fig. 2

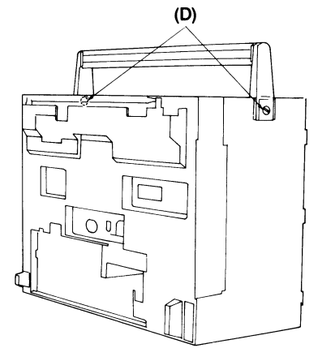


Fig. 3

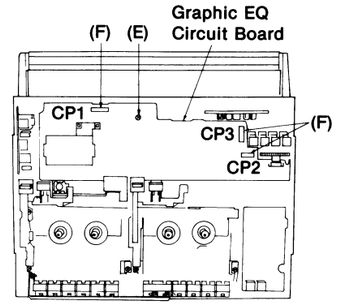


Fig. 4

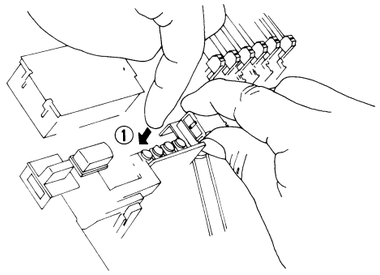


Fig. 5

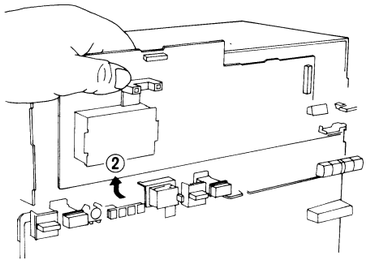
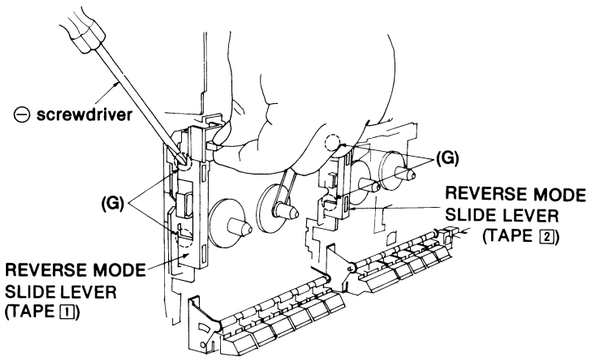


Fig. 6



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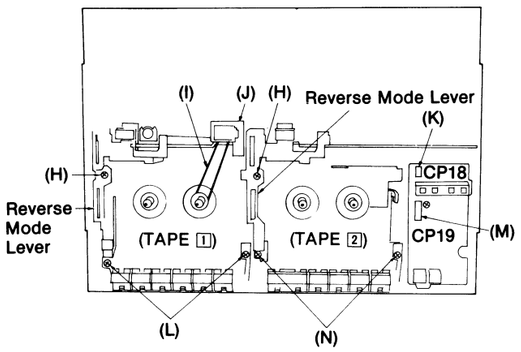


Fig. 8

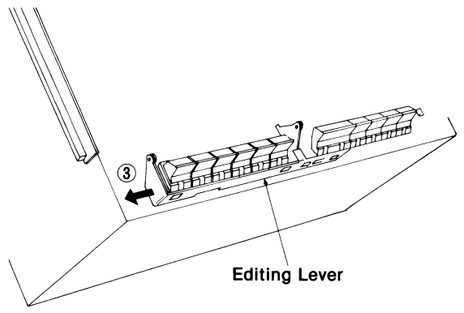


Fig. 9

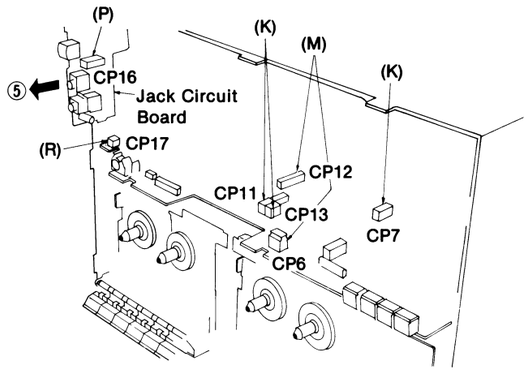


Fig. 10

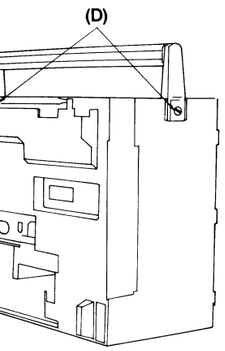


Fig. 3

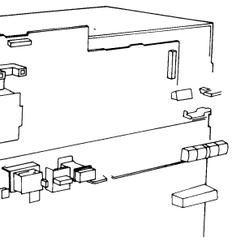
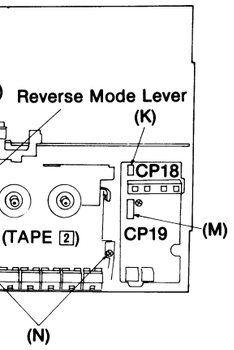
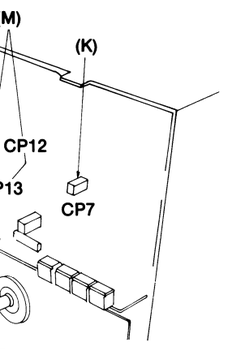


Fig. 6





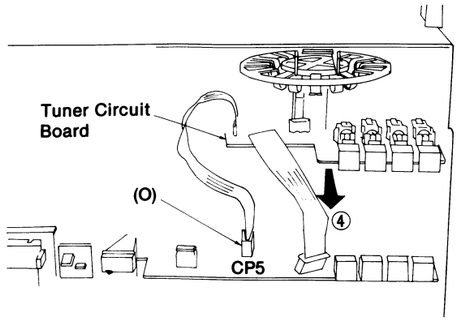


Fig. 11

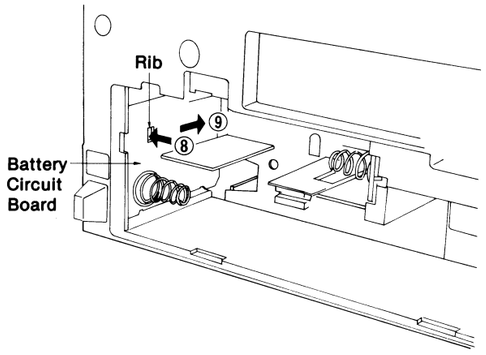


Fig. 13

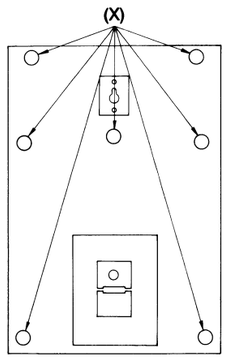


Fig. 15

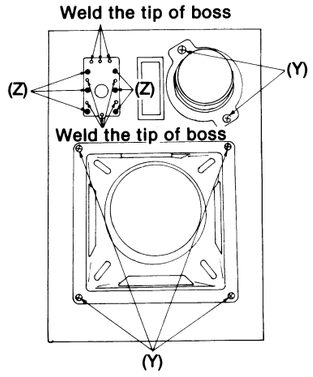


Fig. 16

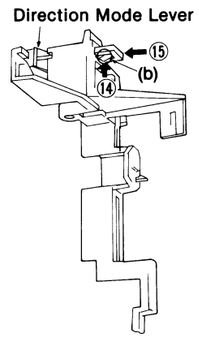
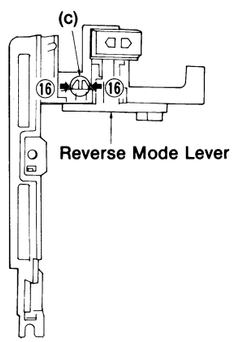


Fig. 18



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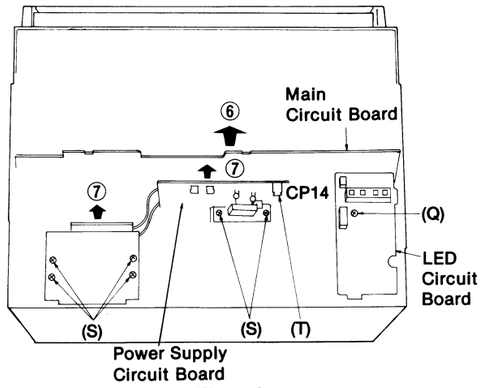


Fig. 12

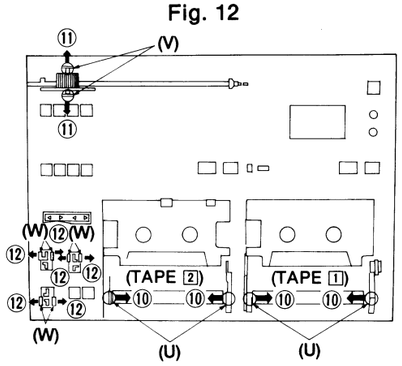


Fig. 14

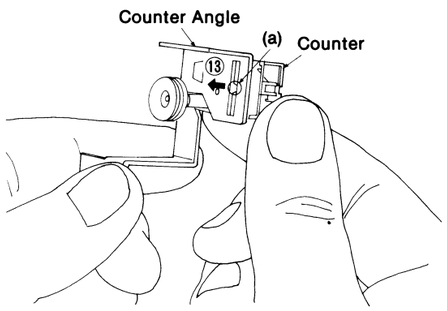


Fig. 17

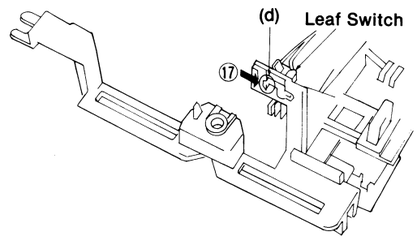


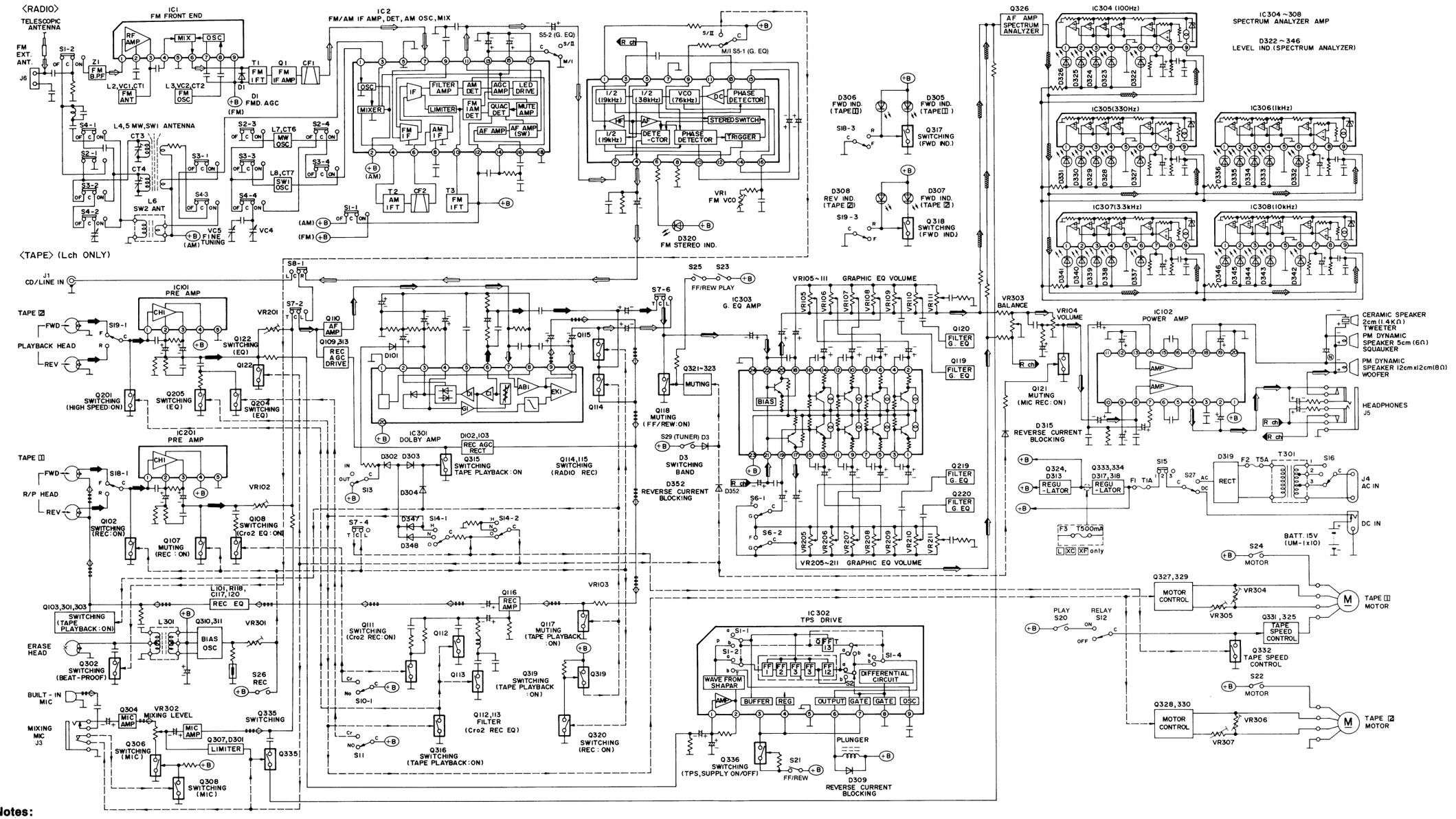
Fig. 20

Ref. No.	Shown in Fig. —.	To remove —.	Remove —.
1	1	Front Cabinet Ass'y	Screw (3×50) mm ..... (A)×7
2	2		Pull out the knob. (*1) ..... (B)×10
3	2		Push the Stop/Eject button (Tape 1 & 2) ..... (C)×2
4	3	Handle	Screw (4×9) mm ..... (D)×2
5	4	Graphic EQ Circuit Board	Screw (3×12) mm ..... (E)×1
6	4		Socket (CP1, CP2, CP3) ..... (F)×3
7	5		Push the G.EQ circuit board in the direction of arrow ① and remove the G.EQ circuit board of counter holder.
8	6		Pull out the board in the direction of arrow ②.
9	7	Reverse Mode Lever	Remove the rib with ⊖ screwdriver (Tape 1 & 2) ..... (G)×4
10	8	Reverse Mode Slidel/ Direction Mode Chassis	Screw (3×12) mm (Tape 1 & 2) ..... (H)×2
11	8	Mechanism Unit (Tape 1)	Counter Belt ..... (I)×1
12	8		Counter Ass'y ..... (J)×1
13	9		Remove the editing lever in the direction of arrow ③.
14	8, 10		Socket (CP7, CP11, CP13, CP18) ..... (K)×4
15	8		Screw (3×12) mm ..... (L)×2
16	8, 10	Mechanism Unit (Tape 2)	Socket (CP6, CP12, CP19) ..... (M)×3
17	8		Screw (3×12) mm ..... (N)×2
18	11	Tuner Circuit Board	Socket (CP5) ..... (O)×1
19	11		Pull out the tuner circuit board in the direction of arrow ④.
20	10	Jack Circuit Board	Socket (CP16) ..... (P)×1
21	10		Pull out the jack circuit board in the direction of arrow ⑤.
22	12	LED Circuit Board	Screw (3×12) mm ..... (Q)×1
23	10	Main Circuit Board	Socket (CP17) ..... (R)×1
24	12		Pull out the jack circuit board in the direction of arrow ⑥.
25	12	Power Supply Circuit Board and Power Transformer	Screw (3×12) mm ..... (S)×6
26	12		Socket (CP14) ..... (T)×1
27	12		Pull out the power supply circuit board and power transformer in the direction of arrow ⑦.
28	13	Battery Circuit Board	Push rib in the direction of the arrow ⑧ and remove battery circuit board in the direction of the arrow ⑨.
29	14	Cassette Compartment Cover (Tape 1 & 2)	Remove the cassette compartment cover by pulling one side at a time toward the front of the set while pushing it with ⊖ screwdriver in the direction of the arrow ⑩. ..... (U)×4
30	14	Tuning knob and Dial Pointer	Remove the rib in the direction of the arrow ⑪. ..... (V)×2
31	14	Tape Selector knob (Tape 1 & 2), Dubbing Mode Knob	Remove the rib in the direction of the arrow ⑫. ..... (W)×6
32	15	Speaker Grill	Screw (3×50) mm ..... (X)×7
33	16	Woofer Speake and Squawker Speake	Screw (3×10) mm ..... (Y)×6
34	16	Tweeter Ass'y (*2)	Cut the tip of boss ..... (Z)×6
35	17	Counter	Remove the rib in the direction of the arrow ⑬. ..... (a)×1
36	18	Direction Mode Lever	Push the rib in the direction of arrow ⑭ and pull out the reverse mode lever in the direction of the arrow ⑮. ..... (b)×1
37	19	Reverse Mode Lever	Remove the rib in the direction of the arrow ⑯. ..... (c)×1
38	20	Leaf Switch	Remove the rib in the direction of the arrow ⑰. ..... (d)×1

(*1) When taking off a knob, wrap it with a cloth to prevent scratches.
(*2) When replacing the tweeter, attach the tweeter to the speaker cabinet by welding it to the remainder of the boss.

▼ Be sure to fold at the (▼) mark so that mark is on the outside.

BLOCK DIAGRAM



Notes:

1. S1~S4, S29: Band switch in "OFF" position. (Tuner circuit board)
2. S5-1, S5-2: FM Mode/B.P. switch in "MONO/II" position. (G. EQ circuit board)
3. S6~S9, S17: Equalizer mode/Function switch in "G. EQ/TAPE" position. ※S9 No Circuit
4. S10-1, S10-2: Tape select switch in "NORMAL" position. (TAPE 1)
5. S11: Tape select switch in "NORMAL" position. (TAPE 2)
6. S12: Relay play switch in "OFF" position.
7. S13: Dolby NR switch in "OUT" position.
8. S14-1, S14-2: Dubbing mode switch in "OFF/BUILT IN MIC" position.
9. S15: Power switch in "OFF" position.
10. S16: Voltage select switch.
11. S18-1~S18-3: Direction switch in "FWD" position. (TAPE 1)
12. S19-1~S19-4: Direction switch in "FWD" position. (TAPE 2)
13. S20: Playback switch. (TAPE 2)
14. S21: FF/REW switch. (TAPE 2)
15. S22: Motor switch. (TAPE 2)
16. S23: Playback switch. (TAPE 1)
17. S24: Motor switch. (TAPE 1)
18. S25: FF/REW switch. (TAPE 1)
19. S26: Record switch. (TAPE 1)
20. S27: AC/DC IN select switch in "DC" position.
21. VR1: FM VCO Adjustment VR.
22. VR101: Playback gain adjustment VR. Lch (TAPE 1)
23. VR102: Playback gain adjustment VR. Rch (TAPE 1)
24. VR103: Record/Playback gain adjustment VR. Lch
25. VR104, 204: Volume control VR.
26. VR105~111, 205~211: Graphic equalizer control VR.
27. VR201: Playback gain adjustment VR. Lch (TAPE 2)
28. VR202: Playback gain adjustment VR. Rch (TAPE 2)
29. VR203: Record/Playback gain adjustment VR. Rch
30. VR301: Bias current adjustment VR.
31. VR302: Mix level adjustment VR.
32. VR303: Balance control VR.
33. VR304: Tape speed adjustment VR, for high speed. (TAPE 1)
34. VR305: Tape speed adjustment VR, for normal speed. (TAPE 1)
35. VR306: Tape speed adjustment VR, for high speed. (TAPE 2)
36. VR307: Tape speed adjustment VR, for normal speed. (TAPE 2)

ME

■ ALIGNMENT INSTRU

1. Set power switch to
2. Set volume control t
3. Set equalizer mode t
4. Set graphic equalize
5. Set band switch to M
6. Set balance control

■ MW, SW1 and SW2 A

	BAND	SIGNAL G / SWEEP
		CONNECTIO
(1)	MW	Fashion loop of several turns of wire and radiate signal into loop receiver.
(2)	MW	〃
(3)	MW	〃
(4)	MW	〃
(5)	MW	〃
(※1)Cement antenna bobb		
(6)	SW1	
(7)	SW1	Connect to test p ▼ through ceram capacitor (10 pF) Negative side to t point ▼.
(8)	SW1	
(9)	SW1	
(※2) Cement antenna bob		
(10)	SW2	
(11)	SW2	Connect to test p ▼ through ceram capacitor (10 pF) Negative side to t point ▼.
(12)	SW2	

MEASUREMENTS AND ADJUSTMENTS

■ ALIGNMENT INSTRUCTION

READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT.

1. Set power switch to ON.
2. Set volume control to center.
3. Set equalizer mode to G.EQ.
4. Set graphic equalizer to center.
5. Set band switch to MW, SW1, SW2, or FM.
6. Set balance control to center.
7. Set function switch to TUNER.
8. Set fine tuning to center.
9. Set FM mode/B.P. Switch to STEREO/I.
10. Set power source voltage to 15 V DC.
11. Output of signal generator should be no higher than necessary to obtain an output reading.

■ MW, SW1 and SW2 ALIGNMENT

	BAND	SIGNAL GENERATOR or SWEEP GENERATOR CONNECTIONS	SIGNAL GENERATOR or SWEEP GENERATOR FREQUENCY	RADIO DIAL SETTING	INDICATOR (ELECTRONICS VOLTMETER or SCOPE)	ADJUSTMENT	REMARKS
	AM-IF ALIGNMENT						
(1)	MW	Fashion loop of several turns of wire and radiate signal into loop of receiver.	455 kHz 30% Mod. at 400 Hz	Point of non-interference. (on/ about 600 kHz)	Output meter across voice coil	T2 (AM IFT)	Adjust for maximum output.
	MW-RF ALIGNMENT						
(2)	MW	〃	511 kHz	Tuning capacitor fully closed	〃	L7 (MW OSC Coil)	Adjust for maximum output.
(3)	MW	〃	1,650 kHz	Tuning capacitor fully open	〃	CT6 (MW OSC Trimmer)	〃
(4)	MW	〃	550 kHz	Tune to signal.	〃	(※1) L4 (MW ANT Coil)	Adjust for maximum output. Adjust L4 by moving coil bobbin along ferrite core.
(5)	MW	〃	1,500 kHz	〃	〃	CT3 (MW ANT Trimmer)	Adjust for maximum output. Repeat steps (2)~(5).
	(※1)Cement antenna bobbin with wax after completing alignment.						
	SW1-RF ALIGNMENT						
(6)	SW1	Connect to test point ▼1 through ceramic capacitor (10 pF). Negative side to test point ▼2.	2.249 MHz	Tuning capacitor fully closed	〃	L8 (SW1 OSC Coil)	Adjust for maximum output.
(7)	SW1		7.231 MHz	Tuning capacitor fully open	〃	CT7 (SW1 OSC Trimmer)	〃
(8)	SW1		2.3 MHz	Tune to signal.	〃	(※2) L5 (SW1 ANT Coil)	Adjust for maximum output. Adjust L5 by moving coil bobbin along ferrite core.
(9)	SW1		7 MHz	〃	〃	CT4 (SW1 ANT Trimmer)	Adjust for maximum output. Repeat steps (6)~(9).
	(※2) Cement antenna bobbin with wax after completing alignment.						
	SW2-RF ALIGNMENT						
(10)	SW2	Connect to test point ▼1 through ceramic capacitor (10 pF). Negative side to test point ▼2.	6.84 MHz	Tuning capacitor fully closed	〃	L9 (SW2 OSC Coil)	Adjust for maximum output.
(11)	SW2		22.79 MHz	Tuning capacitor fully open	〃	CT8 (SW2 OSC Trimmer)	〃
(12)	SW2		7 MHz	Tune to signal.	〃	L6 (SW2 ANT Coil)	Adjust for maximum output. Repeat steps (10)~(12).

■ FM ALIGNMENT

	BAND	SIGNAL GENERATOR or SWEEP GENERATOR CONNECTIONS	SIGNAL GENERATOR or SWEEP GENERATOR FREQUENCY	RADIO DIAL SETTING	INDICATOR (ELECTRONICS VOLTMETER or SCOPE)	ADJUSTMENT	REMARKS
	FM-IF ALIGNMENT						
(1)	FM	High side thru. 0.001 μF to test point ▼3. Negative side to test point ▼2.	10.7 MHz (SWP.)	Point of non-interference. (on/ about 90 MHz)	Connect vert. amp. of scope to test point ▼4. Negative side to test point ▼5.	T1 (FM 1st IFT)	Adjust for maximum amplitude. (Refer to fig. 3).
(2)	FM		〃	〃	〃	T3 (FM 2nd IFT)	Adjust for maximum amplitude. (Refer to fig. 4).
	FM-RF ALIGNMENT						
(3)	FM	Connect to test point ▼1 through FM dummy antenna. Negative side to test point ▼2.	86.2 MHz	Variable capacitor fully closed	Output meter across voice coil	L3 (FM OSC Coil)	(※3) Adjust for maximum output.
(4)	FM		109.2 MHz	Variable capacitor fully open	〃	CT2 (FM OSC Trimmer)	〃
(5)	FM		106 MHz	〃	〃	CT1 (FM ANT Trimmer)	(※3) Adjust for maximum output. Repeat steps (3)~(5).
	(※3) Three output responses will be present: proper tuning is the center frequency.						

■ SEPARATION ALIGNMENT

	ITEM	FM SIGNAL GENERATOR SOURCE CONNECTION	EQUIPMENT CONNECTION ELECTRONIC COUNTER	ADJUSTMENT	SPECIFICATION	REMARKS
(1)	Adjustment of pilot signal	98 MHz, 60 dB (CW) Connect to test point ▼1 through FM dummy antenna. Negative side to test point ▼2.	▼6 ... (+) ▼7 ... (−)	VR1	19 kHz	Adjust VR1, for 19 kHz (±50 Hz) reading on electronics counter.

■ TAPE ADJUSTMENT

	ITEM	INPUT	MEASUREMENT POINT	SPECIFICATION	ADJUSTMENT POINT	REMARKS
(1)	Azimuth	QZZCFM (8 kHz, −20 dB)	SP OUT (AC voltmeter & Oscilloscope)	Maximum output.	Azimuth screw (FWD, REV)	Playback mode Mode switch → STEREO/I (Refer to Fig. 5)
(2)	Rec Bias Current	——	▼9 ...(+) ▼10 ...(−)	Tape selector Normal ... 18±0.5 mV Metal ..... 25±15 V	VR301	FM Mode B.P → Mono/II Tape selector → Normal Function selector → Radio (AM)
(3)	Playback Gain (Tape 1 & 2)	QZZCLA (315 Hz, 0 dB)	TP3 ▼4 ...(+) Lch ▼5 ...(−) ▼8 ...(+) Rch	35±5 mV	(Tape 1) VR101 ... Lch VR102 ... Rch (Tape 2) VR201 ... Lch VR202 ... Rch	Playback mode (FWD and REV playback)
(4)	Record/ Playback Gain	Line IN f=1 kHz, −10 dB	Line OUT	Output voltage ...0±1 dB	VR103 (Lch) VR203 (Rch)	1. Apply a −10 dB 1 kHz signal from the line input terminal. 2. Measure the output voltage of line output terminals. 3. Then, with the unit in the record mode and, record the signal. 4. Playback the recorded part, and measure the output voltage of line output terminals. 5. Compare the output volatage measured in items 2 and 4, and adjust so there is no difference in the level. (Adjust to obtain 0±1 dB.)

■ TAPE SPEED ADJUSTMENTTAPE ADJUSTMENT

	ITEM	FM SIGNAL GENERATOR SOURCE CONNECTION	EQUIPMENT CONNECTION ELECTRONIC COUNTER	ADJUSTMENT	REMARKS
(1)	Tape speed adjustment for high speed. Tape 1 & 2	QZZCWAT (3kHz) Use QZZCWC (1.5kHz) tape when using a wow/flutter meter.	SP OUT	VR306 (Tape 2) VR304 (Tape 1)	1. Short TP 1 as shown in the Fig. 2 above to enter the hight speed mode. Tape 2 ... 6040 ± 40 Hz (3020 ± 20 Hz) Tape 1 ... −30 ± 30 Hz of tape speed of tape 2 (Refer to Fig. 6 & 7 when using a wow/flutter meter)
(2)	Tape speed adjustment for normal speed. Tape 1 & 2	QZZCWAT (3kHz)	SP OUT	VR307 (Tape 2) VR305 (Tape 1)	1. Open TP 1 and set the tape speed to normal. 2. Tape 2 ... 3030 ± 20 Hz Tape 1 ... −15 ± 15 Hz of the speed of tape 2 (Refer to Fig. 8 & 9 when using a wow/flutter meter)

Note:
1. Adjust the tape speed by first adjusting the hight speed. Do not adjust the hight speed after adjusting the normal speed. (The normal speed changes if the hight speed is adjusted afterwards)
2. Adjust the tape advance speed in the following order: tape 2 hight, normal speed; tape 1 hight, normal speed.

■ ALIGMENT POINT

* Please refer to Circuit Board and Wiring Connection Diagram of test points location.

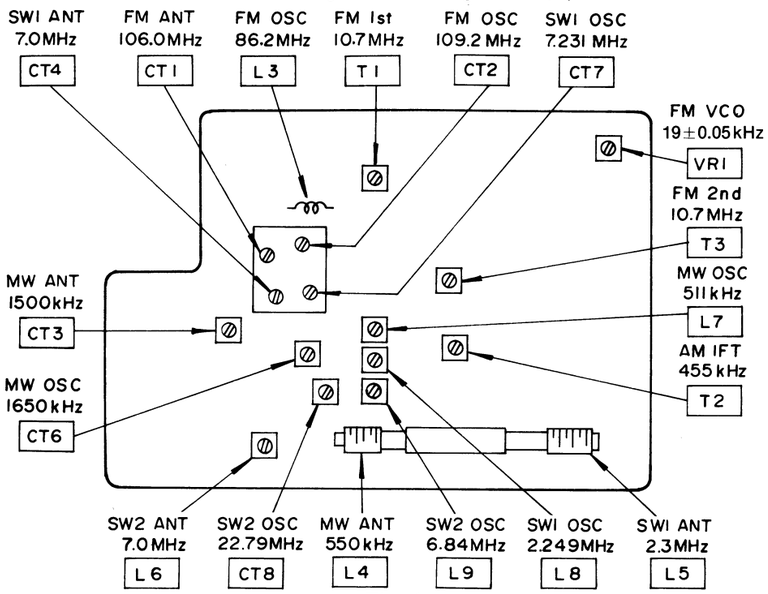


Fig. 1

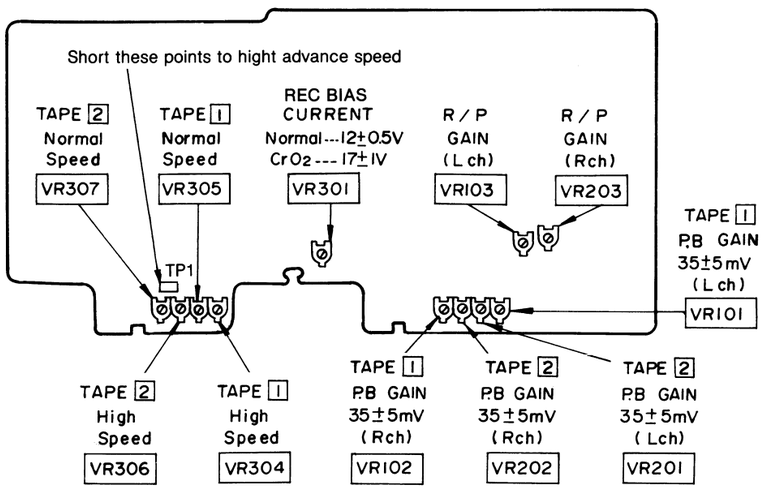


Fig. 2

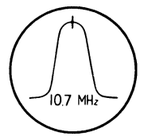


Fig. 3

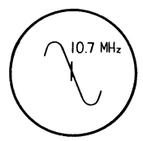


Fig. 4

Azimuth Screw

Fig. 5

• NEEDLE POSITION OF THE WOW/FLUTTER METER (High speed)

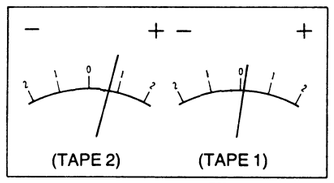


Fig. 6 Fig. 7

• NEEDLE POSITION OF THE WOW/FLUTTER METER (Normal speed)

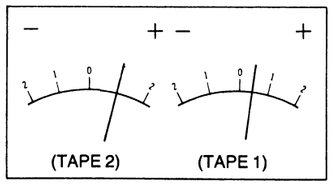
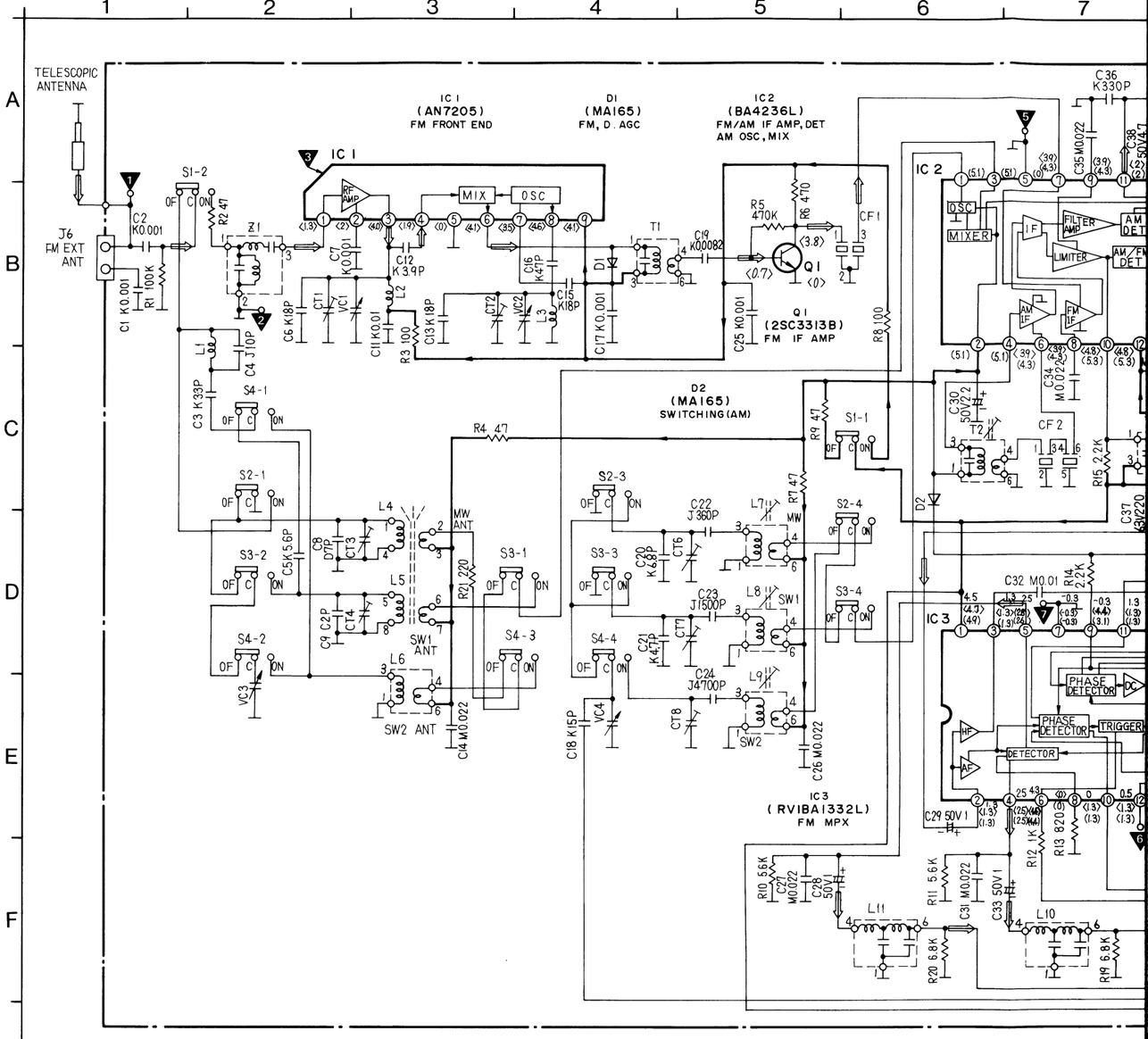


Fig. 8 Fig. 9

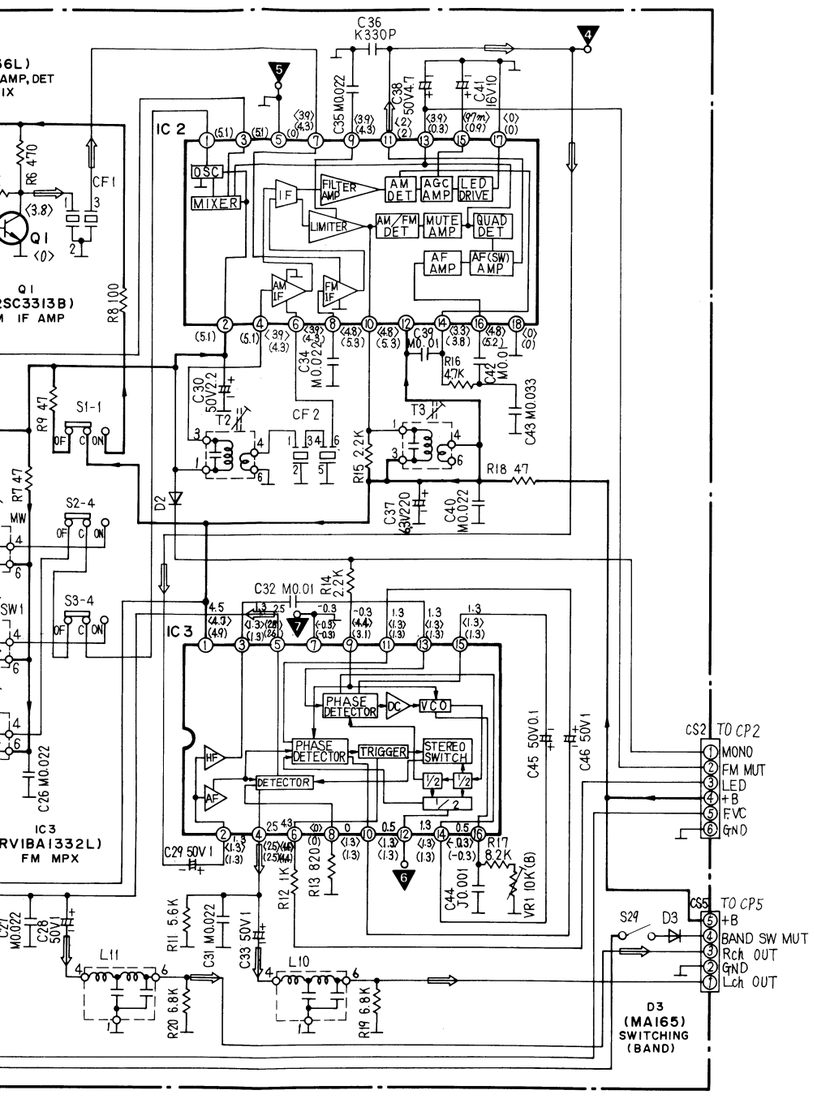
Note: Short TP 1 to adjust the hight speed mode.

SCHEMATIC DIAGRAM (TUNNER)

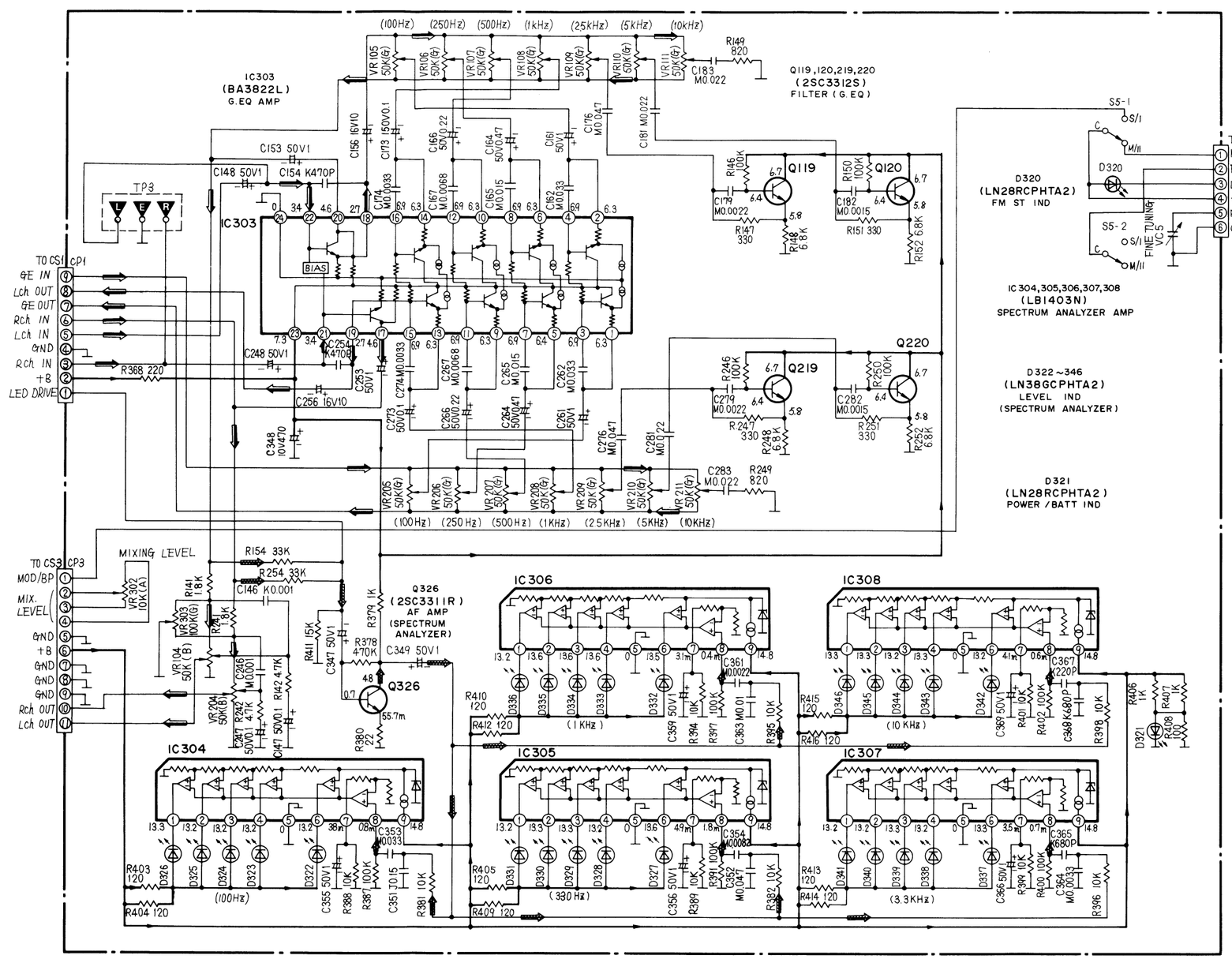


Notes:
1. S1~S4, S29: Band switch in "OFF" position. (S1 ... FM, S2 ... MW, S3 ... SW1, S4 ... SW2, S29 ... Band muting)
2. VR1: FM VCO Adjustment VR.
3. DC voltage measurements are taken with electronics voltmeter from negative terminal of battery. 〈 〉 ... FM, ( ) ... AM
4. Described in schematic diagram are two types of numbers; the supply parts number and production parts number for transistors and diodes. One type number is used for supply parts number and production parts number which they are identical.
   e.g. Q1
   2SC2412NRTB, LNSTB ← Production parts number
   (2SC2412) ← Supply parts number
5. THe supp replacem
6. The mark
   • **This sch with the**

AGRAM (TUNNER)



SCHEMATIC DIAGRAM (GRAPHIC EQUALIZER)



Notes:

1. S5-1, S5-2: FM Mode/B.P switch in "MONO/II" position. (S/I...STEREO/I, M/II...MONO/II)
2. VR104, 204: Volume control VR.
3. VR105~111, 205~211: Graphic equalizer control VR.
4. VR302: Mixing level adjustment VR.
5. VR303: Balance control VR.
6. DC voltage measurements are taken with electronics voltmeter from negative terminal of battery. No. mark...Playback
7. Described in schematic diagram are two types of numbers; the supply parts number and production parts number for transistors and diodes. One type number is used for supply parts number and production parts number which they are identical.
   e.g. Q1
   2SC2412NRTB, LNSTB ← Production parts number
   (2SC2412) ←——— Supply parts number
8. The supply parts number is described alone in the replacement parts list.
9. The mark (▼) shows test point. e.g. ▼L=test point L.
- **This schematic diagram may be modified at any time with the development of new technology.**

→ +Ⓑ Voltage Line
⇨ Spectrum Analyzer Signal Line
⇒ Main (Radio/Tape) Signal Line

ic diagram are two types of
arts number and production parts
s and diodes.
sed for supply parts number and
ber which they are identical.

STB ← Production parts number
——— Supply parts number

5. THe supply parts number is described alone in the replacement parts list.
6. The mark (▼) shows test point. e.g. ▼1=test point 1.
- **This schematic diagram may be modified at any time with the development of new technology.**

→ +Ⓑ Voltage Line
⇨ Radio (FM) Signal Line

Notes:

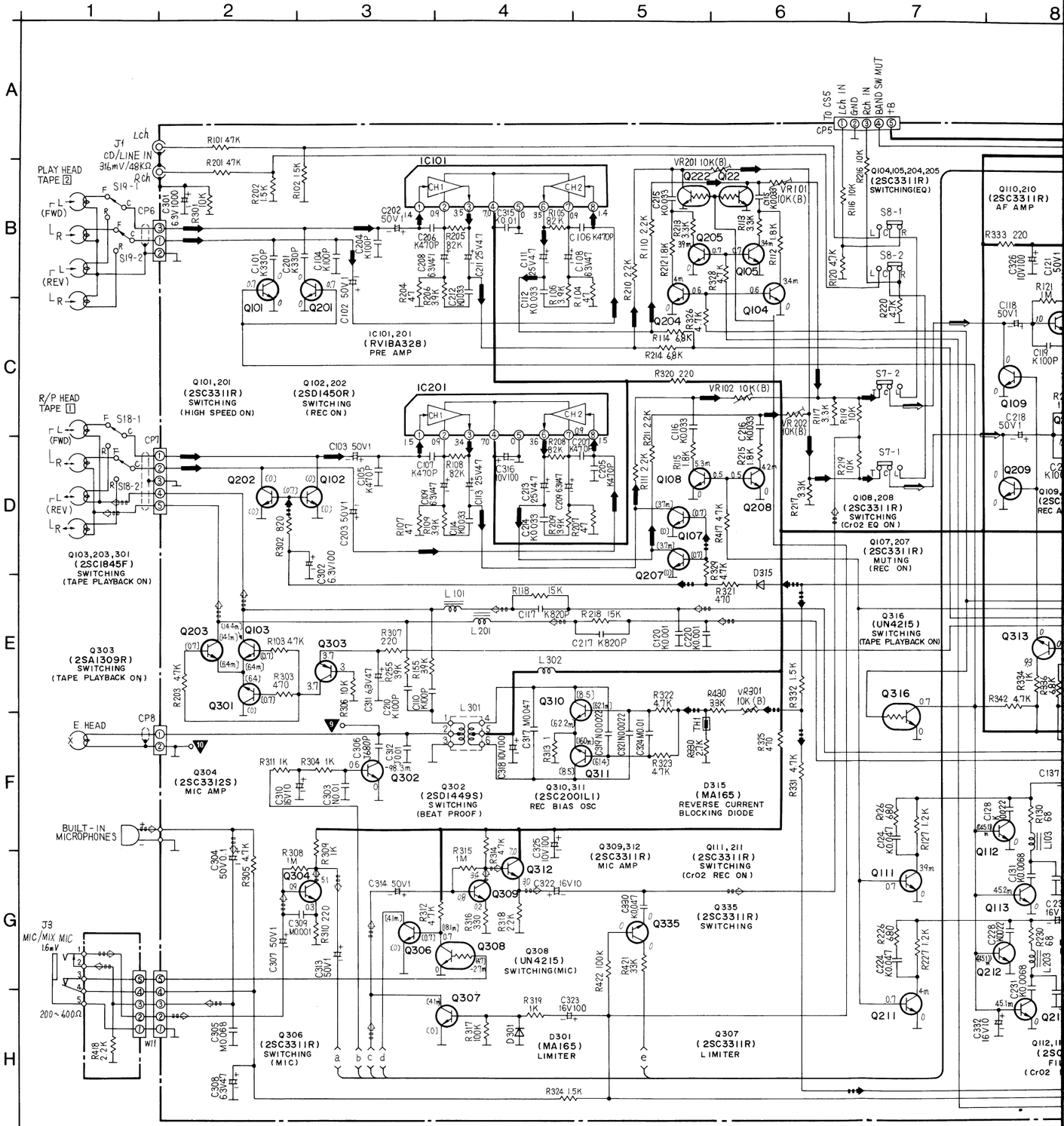
1. S6～S9, S17: Equalizer mode/Function switch in "G. EQ/TAPE" position. (S6...EQUALIZER MODE, S7...TAPE, S8...TUNER, S9...CD/LINE, S17...FUNCTION MUTING) ※S9 No Circuit
2. S10-1, S10-2: Tape select switch in "NORMAL" position. (TAPE 1) (Cr...CrO_2, No...NORMAL)
3. S11: Tape select switch in "NORMAL" position. (TAPE 2) (Cr...CrO_2, No...NORMAL)
4. S12: Relay play switch in "OFF" position.
5. S13: Dolby NR switch in "OUT" position.
6. S14-1, S14-2: Dubbing mode switch in "OFF/BUILT IN MIC" position. (H...HIGH, N...NORMAL, O...OFF/BUILT IN MIC)
7. S15: Power switch in "OFF" position. (1...ON, 3...OFF)
8. S16: Voltage select switch.
9. S18-1～S18-3: Direction switch in "FWD" position. (TAPE 1) (F...FWD, R...REV)
10. S19-1～S19-4: Direction switch in "FWD" position. (TAPE 2) (F...FWD, R...REV)
11. S20: Playback switch. (TAPE 2)
12. S21: FF/REW switch. (TAPE 2)
13. S22: Motor switch. (TAPE 2)
14. S23: Playback switch. (TAPE 1)
15. S24: Motor switch. (TAPE 1)
16. S25: FF/REW switch. (TAPE 1)
17. S26: Record switch. (TAPE 1)
18. S27: AC/DC IN select switch in "DC" position.
19. VR101: Playback gain adjustment VR. Lch (TAPE 1)
20. VR102: Playback gain adjustment VR. Rch (TAPE 1)
21. VR103: Record/Playback gain adjustment VR. Lch
22. VR201: Playback gain adjustment VR. Lch (TAPE 2)
23. VR202: Playback gain adjustment VR. Rch (TAPE 2)
24. VR203: Record/Playback gain adjustment VR. Rch
25. VR301: Bias current adjustment VR.
26. VR304: Tape speed adjustment VR, for high speed. (TAPE 1)
27. VR305: Tape speed adjustment VR, for normal speed. (TAPE 1)
28. VR306: Tape speed adjustment VR, for high speed. (TAPE 2)
29. VR307: Tape speed adjustment VR, for normal speed. (TAPE 2)
30. DC voltage measurements are taken with electronics voltmeter from negative terminal of battery.
    [ ]...Record, (( ))...Normal tape speed, 《 》...High tape speed, [[ ]]...T.T.S.
    No mark...Playback
31. Battery current: No signal ..... 248 mA
    Maximum output (radio) ..... 2.3 A
    Maximum output (tape) ..... 2.6 A
32. Described in schematic diagram are two types of numbers; the supply parts number and production parts number for transistors and diodes.
    One type number is used for supply parts number and production parts number which they are identical.
    e.g. Q1
    2SC2412NRTB, LNSTB ← Production parts number
    (2SC2412) ← Supply parts number
33. The supply parts number is described alone in the replacement parts list.
34. The mark (▼) shows test point. e.g. ▼ = test point 1.
35. Important safety notice
    Components identified by ⚠ mark have special characteristics important for safety.
    When replacing any of these components, use only manufacturer's specified parts.

- **This schematic diagram may be modified at any time with the development of new technology.**

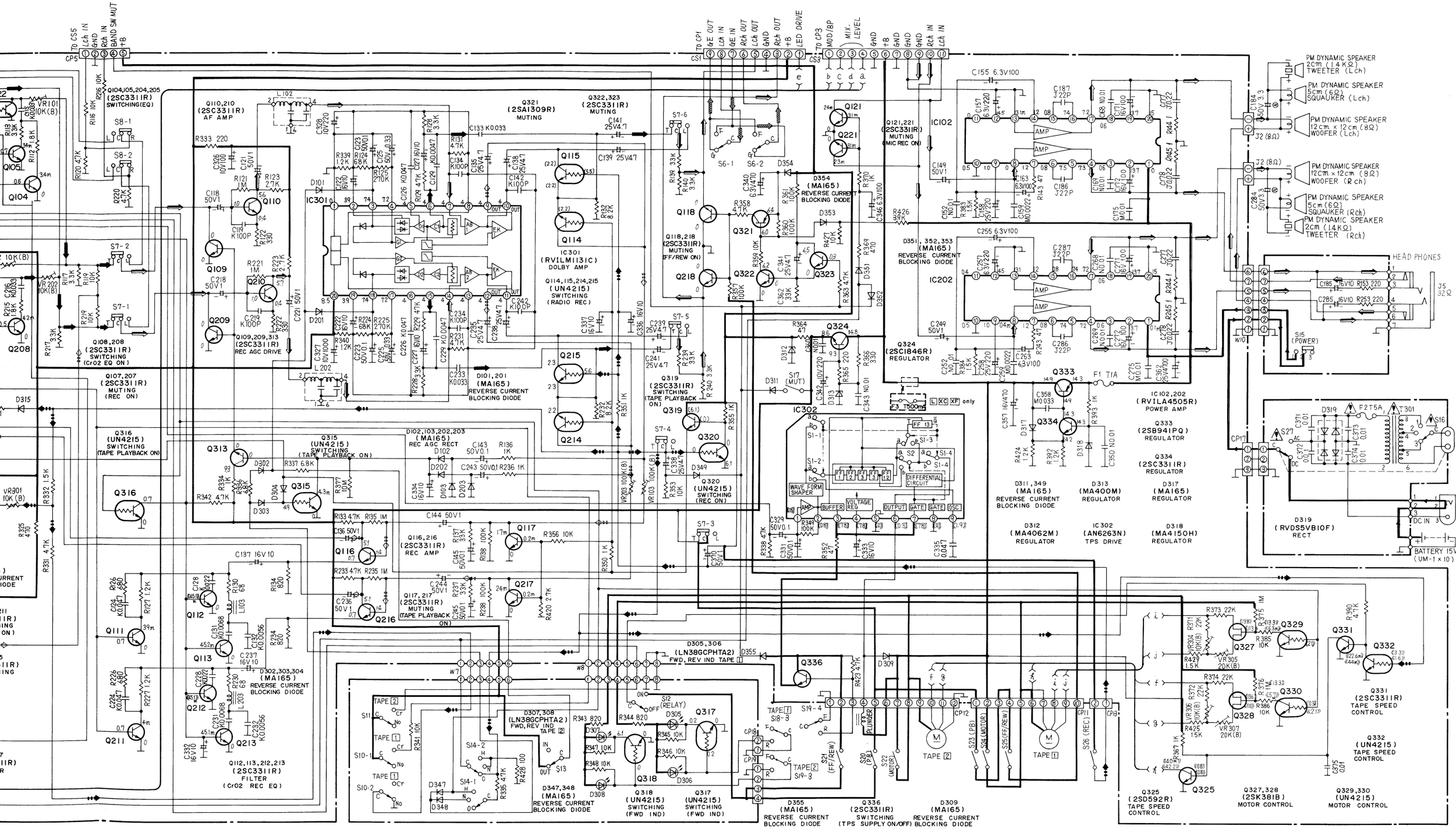
+Ⓑ Voltage Line
Tape (REC) Signal Line
Tape (PLAY) Signal Line
Main (Tape/Radio) Signal Line
Spectrum Analyzer Signal Line
Tape (REC/PLAY) Signal Line

Over-all frequency response
LINE IN −22dB
Dolby NR. IN
SPEAKER OUT (VR max)

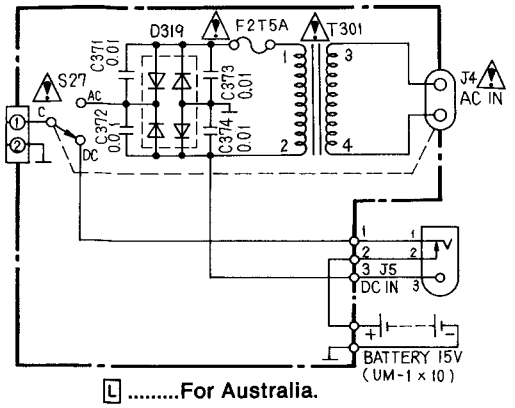
Normal	100Hz	0±6dB
	1kHz	0dB
	10kHz	−2±6dB
CrO_2	100Hz	0±6dB
	1kHz	0dB
	10kHz	−4±6dB



SCHEMATIC DIAGRAM (AUDIO)


6 7 8 9 10 11 12 13 14 15 16 17 18 19
CP5
CS1
CS3
Q110,210 (2SC3311R) AF AMP
Q321 (2SA1309R) MUTING
Q322,323 (2SC3311R) MUTING
Q104,105,204,205 (2SC3311R) SWITCHING(EQ)
Q107,207 (2SC3311R) MUTING (REC ON)
Q108,208 (2SC3311R) SWITCHING (CrO2 EQ ON)
Q109,209,313 (2SC3311R) REC AGC DRIVE
Q316 (UN4215) SWITCHING (TAPE PLAYBACK ON)
Q315 (UN4215) SWITCHING (TAPE PLAYBACK ON)
Q112,113,212,213 (2SC3311R) FILTER (CrO2 REC EQ)
Q116,216 (2SC3311R) REC AMP
Q117,217 (2SC3311R) MUTING (TAPE PLAYBACK ON)
IC301 (RVILM1131C) DOLBY AMP
Q114,115,214,215 (UN4215) SWITCHING (RADIO REC)
Q319 (2SC3311R) SWITCHING (TAPE PLAYBACK ON)
Q320 (UN4215) SWITCHING (REC ON)
Q121,221 (2SC3311R) MUTING (MIC REC ON)
IC102 IC202
IC302
Q324 (2SC1846R) REGULATOR
Q333 (2SB941PQ) REGULATOR
Q334 (2SC3311R) REGULATOR
IC102,202 (RVILA4505R) POWER AMP
D311,349 (MA165) REVERSE CURRENT BLOCKING DIODE
D313 (MA400M) REGULATOR
D317 (MA165) REGULATOR
D312 (MA4062M) REGULATOR
IC302 (AN6263N) TPS DRIVE
D318 (MA4150H) REGULATOR
D319 (RVDS5VB10F) RECT
PM DYNAMIC SPEAKER 2cm (14KΩ) TWEETER (Lch)
PM DYNAMIC SPEAKER 5cm (6Ω) SQUAUKER (Lch)
PM DYNAMIC SPEAKER 12cm × 12cm (8Ω) WOOFER (Lch)
PM DYNAMIC SPEAKER 12cm × 12cm (8Ω) WOOFER (Rch)
PM DYNAMIC SPEAKER 5cm (6Ω) SQUAUKER (Rch)
PM DYNAMIC SPEAKER 2cm (14KΩ) TWEETER (Rch)
HEAD PHONES
J5 32Ω
J4 AC IN
BATTERY 15V (UM-1×10)
D302,303,304 (MA165) REVERSE CURRENT BLOCKING DIODE
D305,306 (LN38GCPHTA2) FWD, REV IND TAPE 1
D307,308 (LN38GCPHTA2) FWD, REV IND TAPE 2
D347,348 (MA165) REVERSE CURRENT BLOCKING DIODE
Q318 (UN4215) SWITCHING (FWD IND)
Q317 (UN4215) SWITCHING (FWD IND)
D355 (MA165) REVERSE CURRENT BLOCKING DIODE
Q336 (2SC3311R) SWITCHING (TPS SUPPLY ON/OFF)
D309 (MA165) REVERSE CURRENT BLOCKING DIODE
Q325 (2SD592R) TAPE SPEED CONTROL
Q327,328 (2SK381B) MOTOR CONTROL
Q329,330 (UN4215) MOTOR CONTROL
Q331 (2SC3311R) TAPE SPEED CONTROL
Q332 (UN4215) TAPE SPEED CONTROL
D354 (MA165) REVERSE CURRENT BLOCKING DIODE
D351,352,353 (MA165) REVERSE CURRENT BLOCKING DIODE
L XC XF only
F3 T500mA
F1 T1A
F2 T5A
T301
S1 (MUT)
S2 (RELAY)
S6 (POWER)
S7-1 S7-2 S7-3 S7-4 S7-5 S7-6
S8-1 S8-2
S10-1 S10-2
S11 S13
S14-1 S14-2
S16 (POWER)
S17 (MUT)
S18-3 S19-3 S19-4
S20 (PB) S21 (FF/REW) S22 (MOTOR) S23 (PB) S24 (MOTOR) S25 (FF/REW) S26 (REC)
S27
TAPE 1 TAPE 2
DIFFERENTIAL CIRCUIT
WAVE FORM SHAPER
VOLTAGE REG
BUFFER
OUTPUT GATE GATE OSC
AMP
REVERSE CURRENT BLOCKING DIODE
REMOTE PLUNGER

ELECTRICAL PARTS LOCATION



L .....For Australia.
XF .....For Newzealand.

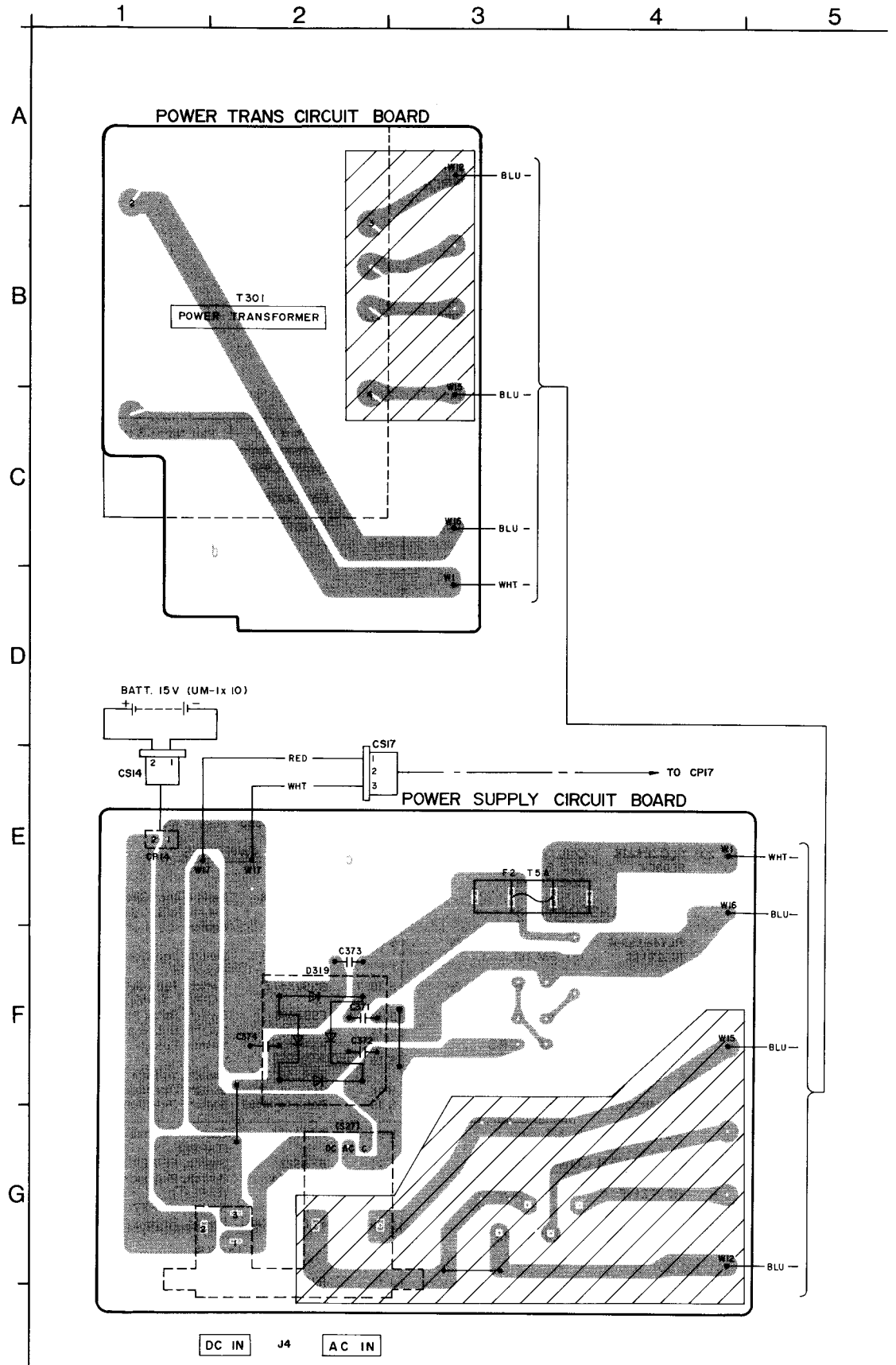
X .....For Asia, Latin America, Middle East and Africa areas.
L .....For Australia.
XC .....For Saudi Arabia.
XF .....For Newzealand.
ME .....For AAFES EUROPE.
MF .....For AAFES PACIFIC.

REPLACEMENT PARTS LIST

Important safety notice
Components identified by ⚠ mark have special characteristics important for safety.
When replacing any of these components, use only manufacturer's specified parts.

Ref. No.	Part No.	Part Name & Description
		INTEGRATED CIRCUITS
IC 1	**AN7205**	IC (FM FRONT END)
IC 2	**BA4236L**	IC (FM/AM IF AMP DET. AM OSC. MIX)
IC 3	**RViBA1332L**	IC (FM MPX)
IC 101, 201	**RViBA328**	IC (PRE AMP)
IC 102, 202	**RViLA4505R**	IC (POWER AMP)
IC 301	**RViLM1131C**	IC (DOLBY AMP)
IC 302	**AN6263N**	IC (TPS DRIVE)
IC 303	**BA3822LS**	IC (G. EQ AMP)
IC 304, 305, 306, 307, 308	**LB1403N**	IC (SPECTRUM ANALYZER AMP)
		TRANSISTORS
Q 1	**2SC3313B**	Transistor (FM IF AMP)
Q 101, 104, 105, 107, 108, 109, 110, 111, 112, 113, 116, 117, 118, 121, 201, 204, 205, 207, 208, 209, 210, 211, 212, 213, 216, 217, 218, 221, 306, 307, 309, 312, 313, 319, 322, 323, 331, 334, 335, 336	**2SC3311R**	Transistor (SWITCHING, MUTING, REC AGC DRIVE, AF AMP, FILTER, REC AMP, LIMITER, MIC AMP, TAPE SPEED CONTROL, REGULATOR)
Q 102, 202	**2SD1450T**	Transistor (SWITCHING)
Q 103, 203, 301	**2SC1845F**	Transistor (SWITCHING)
Q 114, 115, 122, 214, 215, 222, 308, 315, 316, 317, 318, 320, 329, 330, 332	**UN4215**	Transistor (SWITCHING, MOTOR CONTROL, TAPE SPEED CONTROL)
Q 119, 120, 219, 220	**2SC3312S**	Transistor (FILTOR)
Q 302	**2SD1449S**	Transistor (SWITCHING)
Q 303, 321	**2SA1309R**	Transistor (SWITCHING, MUTING)
Q 304	**2SC3312S**	Transistor (MIC AMP)
Q 310, 311	**2SC2001L1**	Transistor (REC BIAS OSC)
Q 324	**2SC1846R**	Transistor (REGULATOR)
Q 325	**2SD592R**	Transistor (TAPE SPEED CONTROL)
Q 326	**2SC3311R**	Transistor (AF AMP)
Q 327, 328	**2SK381B**	Transistor (MOTOR CONTROL)
Q 333	**2SB941**	Transistor (REGULATOR)
		DIODES & RECTIFIERS
D 1, 2, 3	**MA165**	Diode (FM D.AGC, SWITCHING)
D 101, 102, 103, 201, 202, 203, 301, 302, 303, 304, 309, 311, 315, 317, 347, 348, 349, 351, 352, 353, 354, 355	**MAU65**	Diode (REVERSE CURRENT BLOCKING DIODE, REC AGC CONTROL, LIMITER, REGULATOR)
D 305, 306, 307, 308	**LN38GCPHTA2**	Diode (FWD, REV IND TAPE 1, 2)
D 312	**MA4062M**	Diode (REGULATOR)
D 313	**MA4100M**	Diode (REGULATOR)
D 318	**MA4150H**	Diode (REGULATOR)
D 319	**RVDS5VB10**	Diode (RECT)
D 320, 321	**LN28RCPHTA2**	Diode (FM ST, POWER/BATT IND)
D 322, 323, 324, 325, 326, 327, 328, 329, 330, 331, 332, 333, 334, 335, 336, 337, 338, 339, 340, 341, 342, 343, 344, 345, 346	**LN38GCPHTA2**	Diode (LEVEL IND)
		COILS
L 1	**RLQY30S1**	IFT, AM
L 3	**RLD4Y53**	Oscillator Coil, FM
L 4, 5	**RLF5W152**	Antenna Coil, MW/SW1
L 6	**RLA3B44**	Antenna Coil, SW2
L 7	**RL02B108**	Oscillator Coil, MW
L 8	**RL03B91**	Oscillator Coil, SW1
L 9	**RL03B95**	Oscillator Coil, SW2
L 10, 11	**RLE5031**	Filter
L 101, 201	**RLQZM473J-MB**	Coil, Choke
L 102, 202	**RLE9B2**	Filter
L 103, 203	**RLQZB822K**	Coil, Choke
L 301	**RL08C4**	Coil, Bias OSC
L 302	**RLQZB470K**	Coil, Choke
		TRANSFORMERS
T 1, 3	**RLT4B153-M**	Power Transformer ⚠
T 2	**RLi2B153**	IFT, FM 1st, 2nd
T 301 L XF	**RLT5M5A2A-X**	Power Transformer ⚠
T 301 X XC ME MF	**RLT5M5G1A-X**	Power Transformer ⚠
		VARIABLE CAPACITORS
VC 1, 2, 3, 4 (CT1, 2, 4, 7)	**RCV4RC2RA**	Variable Capacitor/with Trimmer Capacitor
VC 5	**RCVMH60C8**	Fine Tuning
		TRIMMER CONDENSERS
CT 3, 6	**RCVTZ11F**	Trimmer Capacitor
CT 8	**RCV10AF1-S**	Trimmer Capacitor
		VARIABLE RESISTORS
VR 101, 102, 201, 202, 301, 304, 306	**EVND1AA00B14**	Playback Gain, Rec Bias, Tape Speed Adjustment VR, 10k (B) (High) TAPE 1, TAPE 2
VR 103, 203	**EVND1AA00B15**	R/P Gain Adjustment VR, 100k (B)
VR 104, 204	**EWATF2T50B54**	Volume Control VR, 50k (B)
VR 105, 106, 107, 108, 109, 110, 111, 205, 206, 207, 208, 209, 210, 211	**EWATA6C95G54**	Graphic Equalizer Control VR, 50k (G)
VR 302	**EWATL2C95A14**	Mixing Level Control VR, 10k (A)
VR 303	**EWATJ2C95G15**	Balance Control VR, 100k (G)
VR 305, 307	**EVND1AA00B24**	Tape Speed Adjustment VR, 20k (B) (Normal) TAPE 1, 2
		CERAMIC FILTERS
CF 1	**RVF107WDZ**	Ceramic Filter (10.7MHz)
CF 2	**RVFSFZ455JZ**	Ceramic Filter (455kHz)
		THERMISTOR
TH 1	**RRT202**	Thermistor
		FILTER
Z 1	**RXABPMB6A**	Component Combination
		FUSES
F 1	**XBA2C10RB0U**	Fuse (T1A)
F 2	**XBA2C50TB0U**	Fuse (T5A)
F 3 XC	**XBA2C05TB0U**	Fuse (T500mA)
		SWITCHES
S 1, 2, 3, 4, 29	**ESB621626**	Band (Tuner Circuit Board)
S 5	**ESB6488**	FM Mode/B.P. (G. EQ Circuit Board)
S 6, 7, 8, 9, 17	**ESB621625**	Switch, Equalizer Mode/ Function
S 10, 11	**RSS2B57Z**	Switch, Tape Selector TAPE 1, TAPE 2
S 12, 13	**ESB6488**	Switch, Relay Play, Dolby NR
S 14	**RSS3B38Z**	Switch, Dubbing Mode
S 15	**RSH2B37Z**	Switch, Power
S 16 X XC ME MF	**RSR3A01Y**	Switch, Voltage Selector ⚠
S 18	**Refer to M109**	Switch, Direction (TAPE 1)
S 19	**Refer to M109**	Switch, Direction (TAPE 2)
S 20, 22	**RFA75ZA**	Switch, Playback, Motor (TAPE 2)
S 21	**RFA52Z**	Switch, FF/REW (TAPE 2)
S 23, 24	**RFA75ZA**	Switch, Playback, Motor (TAPE 1)
S 25	**RFA52Z**	Switch, FF/REW (TAPE 1)
S 26	**RSH1A68ZA-U**	Switch, Record (TAPE 1)
		JACKS
J 1	**RJF1099Z**	Terminal, CD/Line In
J 2	**RJF1098Y**	Terminal, EXT SP
J 3	**RJJ1D25Z**	Jack, MIC/Mixing Microphones
J 4 (S27) X L ME MF XF	**RJJ1F1Y**	Jack, AC/DC IN ⚠
J 4 (S27) XC	**RJJ1F3Z**	Jack, AC/DC IN ⚠
J 5	**RJJ1D27Z**	Jack, Headphones
J 6	**RJF1095Z**	Terminal, EXT Antenna

D



L .....For Australia.
XF .....For Newzealand.

IC1, 302

IC2

IC3

IC101, 201

IC102, 202

IC301

IC303

IC304~308

Q1, 101, 102, 104~113, 116~118, 121, 201, 202, 204, 205, 207~213, 216~218, 221, 302, 303, 306, 307, 309, 312, 313, 319, 321~323, 326, 331, 334~336

Q103, 203, 301, 310, 311, 325

Q114, 115, 119, 120, 122, 214, 215, 219, 220, 222, 304, 308, 315~320, 329, 330, 332

Q324

Q327, 328

Q333

D1~3, 101~103, 201~203, 301~304, 309, 311, 312, 315, 317, 347~349, 351~355

D313, 318

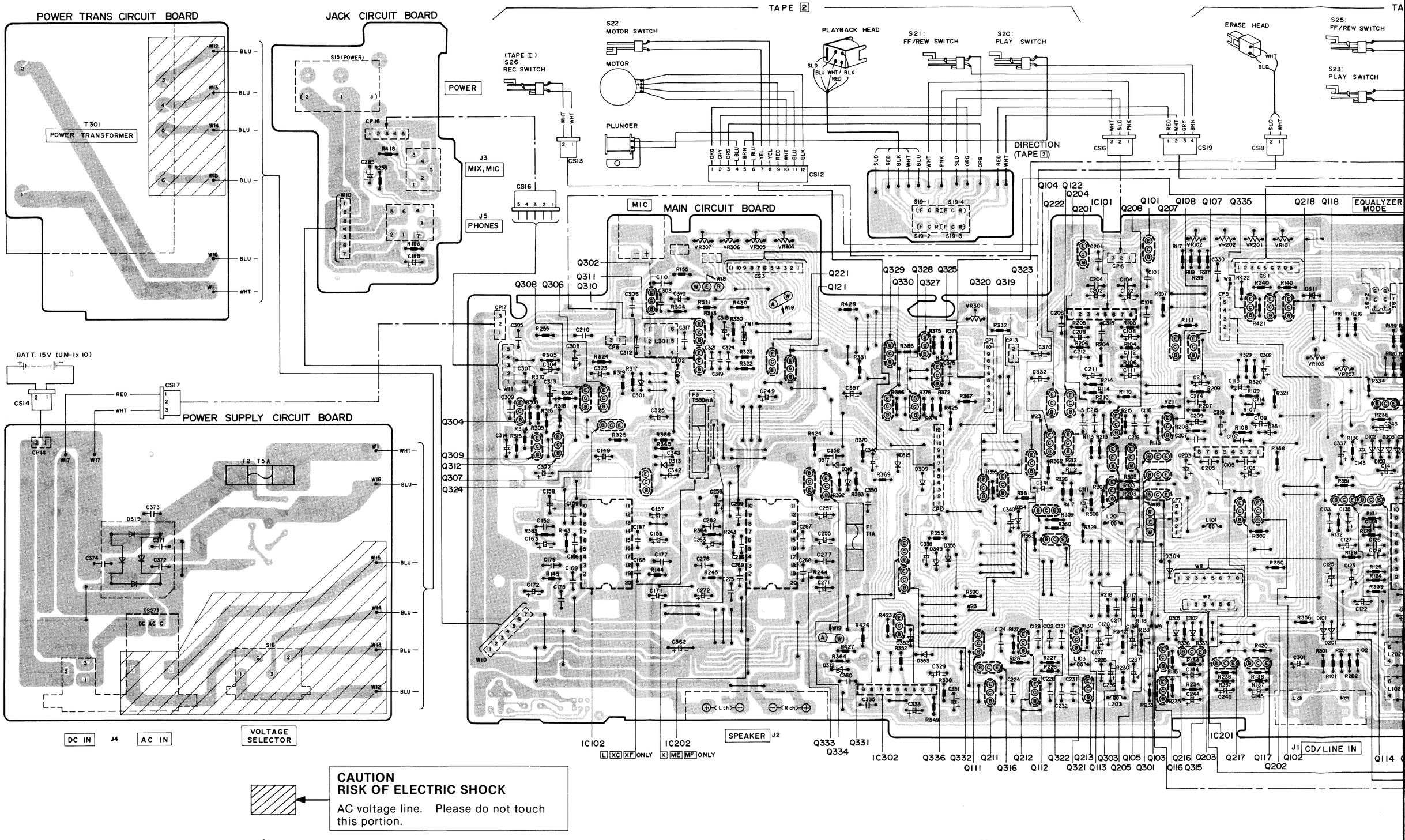
D319

D305~308, 322~346

D320, 321

D

CIRCUIT BOARD AND WIRING CONN



CAUTION
RISK OF ELECTRIC SHOCK

AC voltage line. Please do not touch this portion.

D AND WIRING CONNECTION DIAGRAM

12 13 14 15 16 17 18 19 20 21 22 23 24 25

TAPE [I]

ERASE HEAD

S25: FF/REW SWITCH

S24: MOTOR SWITCH

S23: PLAY SWITCH

MOTOR

CS19 CS8 CS11

CS1 CS3

PM DYNAMIC SPEAKER 2cm (1.4kΩ) TWEETER (Lch)

PM DYNAMIC SPEAKER 5cm (6Ω) SQUAUKER (Lch)

PM DYNAMIC SPEAKER 12cm x 12cm (8Ω) WOOFER (Lch)

(L ch) TO SPEAKER TERMINAL

PM DYNAMIC SPEAKER 2cm (1.4kΩ) TWEETER (Rch)

PM DYNAMIC SPEAKER 5cm (6Ω) SQUAUKER (Rch)

PM DYNAMIC SPEAKER 12cm x 12cm (8Ω) WOOFER (Rch)

(R ch) TO SPEAKER TERMINAL

G.EQ CIRCUIT BOARD

IC308 IC307 IC306 IC305

Q220 Q120 Q219 Q119

Q108 Q107 Q335 Q218 Q118

EQUALYZER MODE

FUNCTION

FM MODE / B.P

FINE TUNING

VOLUME

BALANCE

MIXING LEVEL

(10kHz) (5kHz) (2.5kHz) (1kHz) (500Hz) (250Hz) (100Hz)

GRAPHIC EQUALIZER

IC303 Q326

(10kHz) (3.3kHz) (1kHz) (330Hz) (100Hz)

SPECTRUM ANALIZER

IC304

DIRECTION

(FWD) (REW) (FWD) (REV)

Q317 Q318

R/P HEAD (TAPE [I])

GRN YEL BLU WHT RED BLK

CS18

TAPE SELECTOR

DUBBING MODE

DIRECTION (TAPE [I])

CS7

SLD RED BLK WHT BLU YEL GRN WHT RED BLK BLU SLD ORG ORG

BLK BLU SLD RED WHT

Q313 Q109 Q209 Q214 Q215

CS5

J1 CD/LINE IN

Q216 Q203 Q116 Q315 Q217 Q117 Q202 Q102 Q114 Q115 Q210 IC301 Q110

IC201

SWITCH CIRCUIT BOARD

DOLBY NR

RELAY PLAY

BAND

TUNER CIRCUIT BOARD

IC2

TELESCOPIC ANTENNA

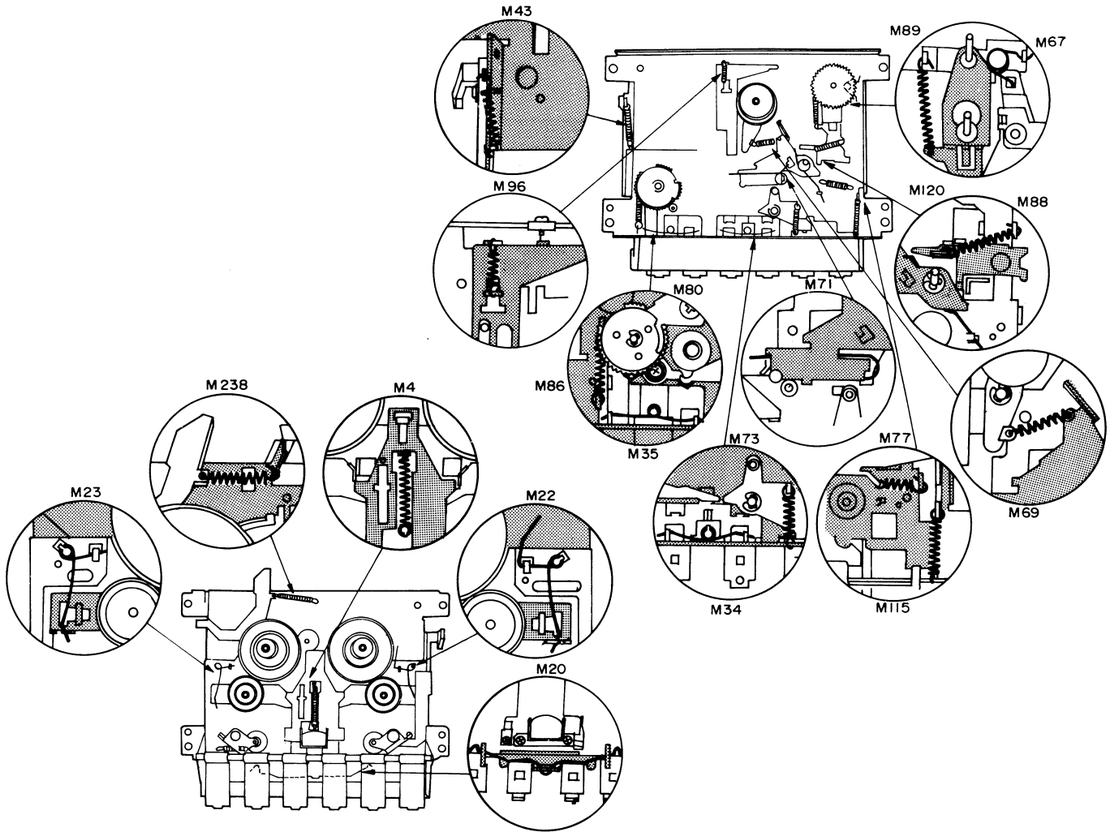
J6

FM EXT. ANT

CS2

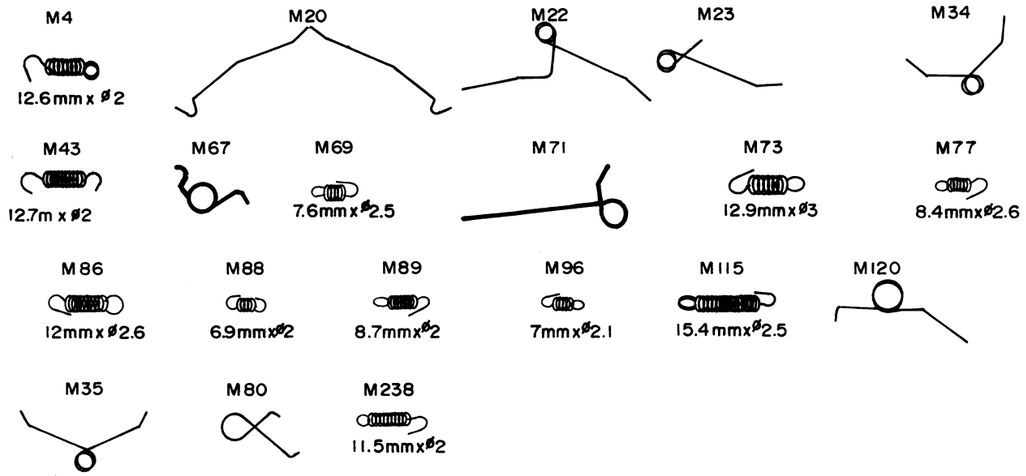
IC1 Q1 IC3

SPRING PARTS LOCATION



■ SPRING ILLUSTRATION

The spring illustration used shows the actual size so it can be used to check the shape of the spring. (The illustration shows the spring separated from the mechanism.)



Specifications

Playback torque	25~55g · cm
Fast Forward torque	80~140g · cm
Rewind torque	80~140g · cm
Wow and flutter	Less than 0.35% (WRMS)

Screw Dimensions Quick Reference

- **Dimensions**

XSN 3 + 10 = Pan head machine screw, 3mm in diameter, 10mm long.

Type/Diameter/Length

- **Types**

Precision machine screw	Machine screw	Tapping/Tap-tight machine screw
XQC Flat head	XSB Binding head	XTB Binding head
XQG Oval fillister head	XSC Oval countersunk head	XTC Oval countersunk head
XQH Flat fillister head	XSH Flat fillister head	XTN Pan head
XQS Flat head	XSN Pan head	XTS Flat head
	XSS Flat head	

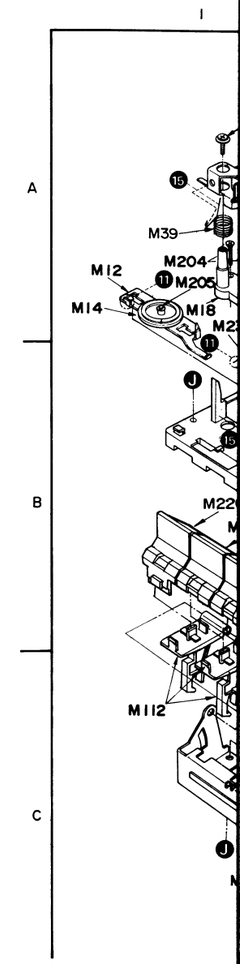
■ MECHANISM PARTS LIST

REPLACEMENT PARTS LIST

The letter in the circle after the part name indicates the color of the part.
ⓢ... Silver

Ref. No.	Part No.	Part Name & Description
		MECHANICAL PARTS
M 1	RFU56Z	Head Panel Ass'y
M 2	RFY725ZA	Lever, C.H.P.
M 3	RFX128Z	Collar, Change Lever
M 4	RFS525Z	Spring, Head Panel
M 5	RFU57Z	Head Base
M 6	RFE207Z	Head Plate
M 7	RFS498Z	Spring Plate, Head
M 8	RJH4C06GYAM	Record/Playback Head
M 10	RJH2C05YZAM	Erase Head
M 12	RFD203Z	Trigger Roller Plate Ass'y (REV)
M 13	RFD204Z	Trigger Roller Plate Ass'y (FWD)
M 14	RFK15Z	Trigger Roller Ass'y
M 15	RFR33Z	Pinch Roller Arm (REV) Ass'y
M 16	RFX129Z	Collar (A), Change
M 18	RFE208Z	Pinch Roller Arm Base (REV)
M 19	RFR32Z	Pinch Roller (FWD) Ass'y
M 20	RFS545Z	Spring, Pinch Roller
M 21	RFE209Z	Pinch Roller Arm Base (FWD)
M 22	RFS656ZA	Spring, Trigger Roller (FWD)
M 23	RFS502Z	Spring, Trigger Roller (REV)
M 24	RFY502Z	Lever, Head Base Control
M 25	RFJ63J	Reel Table Ass'y (REV)
M 28	RFJ64J	Reel Table Ass'y (FWD)
M 29	RFS546Z	Spring, Back Tension
M 30	RFU58Z	Button Base
M 34	RFS547Z	Spring (A), Button Lever
M 35	RFS508Z	Spring (B), Button Lever
M 36	RFY503Z	Lever, Erase Safety
M 37	RFS509Z	Spring, Cassette Holder
M 38	RFG94ZA	Gear, FF
M 39	RFS650ZA	Spring, Pinch Roller Arm (REV)
M 40	RFS658ZA	Spring, Pinch Roller Arm (FWD)
M 41	RFY722Z	Lever, Eject Slide
M 42	RFX120Z	Collar, Eject Slide Lever
M 43	RFS659ZA	Spring, Eject Slide Lever
M 44	RFU98ZA	Mechanism Base Ass'y
M 45	RFY505Z	Slide Lever Chassis
M 46	RFD224Z	Plate, Switch Spring
M 50	RFX146ZA	RC Stopper
M 51	RFY558Z	Plate, Pressure Button Operation
M 52	RFS549Z	Spring, Pressure Button Operation Plate
M 53	RFY526Z	Plate, Switch Operation
M 54	RFY559Z	Lever, Rew Button
M 55	RFY507Z	Lever, Rec Button
M 56	RFY508Z	Lever, Play Button
M 57	RFY509Z	Lever, Rew Button
M 58	RFY510Z	Lever, FF Button
M 59	RFY511Z	Lever, Stop Button
M 60	RFY512Z	Lever Ass'y, Pause Button
M 61	RFY513Z	Lever, Pause
M 62	RFS512Z	Spring, Pause Lever
M 63	RFX122Z	Stopper, Pause Button Lever
M 64	RFY514Z	Lever, Mode Change
M 67	RFS526Z	Spring (B), Mode Change Lever
M 68	RFK16Z	RF Clutch Ass'y
M 69	RFS660ZA	Spring, RF Clutch Ass'y
M 70	RFB59Z	Belt, FF
M 71	RFS514Z	Spring, Lift Arm Ass'y
M 72	RFY516Z	Lift Arm Ass'y
M 73	RFS551Z	Spring, Main Trigger Arm Ass'y
M 74	RFY517Z	Main Trigger Arm Ass'y
M 75	RFG75Z	Gear, Main
M 76	RFY518Z	Change Lever Ass'y
M 77	RFS552Z	Spring, Change Lever Ass'y
M 78	RFG82Z	Gear, Change
M 79	RFG77Z	Gear, Head Plate Moving
M 80	RFS517Z	Spring, Trigger Arm
M 81	RFX148ZA	Collar, Trigger Arm
M 82	RFY519Z	Trigger Arm Ass'y
M 83	RFY520Z	Arm Trigger
M 84	RFX123Z	Collar, Trigger Arm
M 85	RFY521Z	Play Moving Arm Ass'y
M 86	RFS518Z	Spring, Play Moving Arm Ass'y
M 87	RFG79Z	Cam Gear Plate Ass'y
M 88	RFS553Z	Spring, Detector Plate
M 89	RFS520Z	Spring, Cam Gear Plate
M 90	RFG78Z	Gear, Cam
M 91	RFQ35Z	Pully
M 92	RFB60Z	Belt (A), Main
M 93	RFY522Z	Lever, RF
M 94	RFE211Z	Plate, Detector
M 95	RFY523Z	Lever, Control
M 96	RFS554Z	Spring, Control Lever
M 100	RFF45ZA	Flywheel Ass'y, Pulley Capstan
M 101	RFF46ZA	Flywheel Ass'y, Gear Capstan
M 102	RFB52Z	Belt (B), Main
M 104	RFS522ZA	Spring, Damper
M 105	RFE212Z	Plate, Flywheel Cover
M 106	RFE213Z	Collar, Motor Ass'y
M 107	RFI32Z	Cushion, Motor Ass'y
M 108	RFD207Z	Plate, Flywheel Holding
M 109	RFU102ZA	Circuit Board, Switch
M 110	RFM100ZA	Motor Ass'y
M 112	RFY524Z	Lever, Operation
M 113	RFY726ZA	Shaft, Button Lever
M 114	RFD206Z	Frame, Button
M 115	RFS523Z	Spring, Rec Button Lever
M 201	RFE214Z	Screw ⊕2×10 (R/P Head M'tg) (Azimuth)
M 202	RFE326ZA	Screw ⊕2.6×10 (Erase Head M'tg)
M 203	XQC2+3	Screw ⊕2×3 (Head Panel Lever M'tg)
M 204	RFE215Z	Screw ⊕2×8.5 (Pinch Roller Arm Base M'tg)
M 205	RFE216Z	Poly Slider Washer ϕ1.2 (Trigger Roller Plate, etc. M'tg)
M 206	RFE327ZA	Screw ⊕2×6 (Reel Table Ass'y M'tg)
M 207	XSN2+3	Screw ⊕2×3 (Cassette Holder Spring M'tg)
M 209	RFN152Z	Washer ϕ2.1, Detector Plate, etc. M'tg
M 210	RFE221Z	Screw ⊕2×5 (Eject Slide Lever M'tg)
M 211	XUC25FT	E Ring (Head Plate Moving Gear M'tg)
M 212	RFE222Z	Screw ⊕2×6 (Button Base etc. M'tg)
M 213	RFE329ZA	Screw ⊕2×3 (Slide Lever Shassis M'tg)
M 214	RFE324Z	Screw ⊕2×1.5 (Switch Spring Plate M'tg)
M 215	RFE133Z	Poly Washer (Reel Table Ass'y M'tg)
M 216	XQN2+35	Screw ⊕2×3.5 (Trigger Arm M'tg)
M 217	RFE332ZA	Screw (RF Lever, etc. M'tg)
M 218	RFE330ZA	E Ring (Change Gear M'tg)
M 219	XSN2+3	Screw ⊕2×3 (Switch Circuit Board M'tg)
M 220	XQN2+7	Screw ⊕2×7 (Button Frame M'tg)
M 221	RFE218Z	Poly Washer (Flywheel)
M 224	XTB2+3	Screw ⊕2×3 (Switch Circuit Board M'tg)
M 226	RBC1015ZA	Button, Rec
M 227	RBC1016ZA	Button, Play
M 228	RBC1017ZA	Button, Rew
M 229	RBC1018ZA	Button, FF
M 230	RFY527Z	Lever (B), Change
M 231	RBC1019ZA	Button, Stop/Eject
M 232	RBC1020ZA	Button, Pause
M 233	RFY528Z	Lever (A), Change
M 234	XYN2+C4	Screw ⊕2×4 (Change Lever (B) M'tg)
M 235	RFX147ZA	Collar, Change Lever (B)
M 238	RFS661ZA	Spring, Cam Gear Plate
M 239	XYN2+C3	Screw ⊕2×3 (Flywheel Holding Plate M'tg)
M 247	RFS559Z	Spring, Dumper
M 248	RFD297ZA	Shaft, Stopper

(TOP VIEW)



M1 ~ 49	14	12	39	18	23	
M50~199		112				11
M200-215			204	205		
M216~					226	

MECHANISM PARTS LOCATION (TAPE 1)

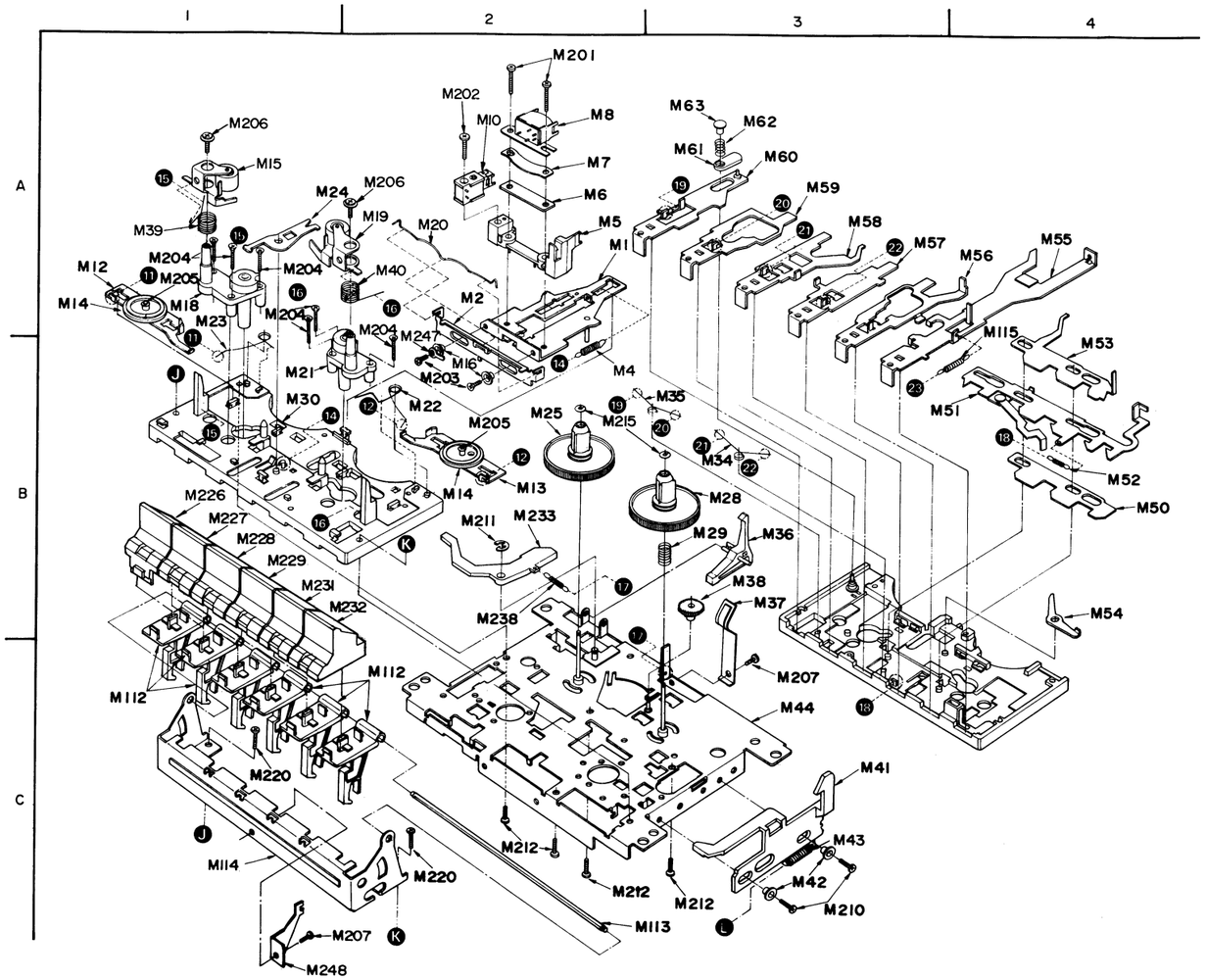
• RECORD/PLAYBACK MECHANISM

10mm long.

ap-tight machine screw
head
ountersunk head
ad
ad

Part Name & Description
crew ⊕2×10 (R/P Head
'tg) (Azimuth)
crew ⊕2.6×10 (Erase Head
'tg)
crew ⊕2×3 (Head Panel
ever M'tg)
crew ⊕2×8.5 (Pinch Roller
rm Base M'tg)
oly Slider Washer φ1.2
Trigger Roller Plate, etc.
'tg)
crew ⊕2×6 (Reel Table
ss'y M'tg)
crew ⊕2×3 (Cassette
older Spring M'tg)
Vasher φ2.1, Detector Plate,
tc. M'tg
crew ⊕2×5 (Eject Slide
ever M'tg)
Ring (Head Plate Moving
ear M'tg)
crew ⊕2×6 (Button Base
tc. M'tg)
crew ⊕2×3 (Slide Lever
hassis M'tg)
crew ⊕2×1.5 (Switch
pring Plate M'tg)
oly Washer (Reel Table
ss'y M'tg)
crew ⊕2×3.5 (Trigger Arm
'tg)
crew (RF Lever, etc. M'tg)
Ring (Change Gear M'tg)
crew ⊕2×3 (Switch Circuit
oard M'tg)
crew ⊕2×7 (Button Frame
'tg)
oly Washer (Flywheel)
crew ⊕2×3 (Switch Circuit
oard M'tg)
utton, Rec
utton, Play
utton, Rew
utton, FF
ever (B), Change
utton, Stop/Eject
utton, Pause
ever (A), Change
crew ⊕2×4 (Change Lever
) M'tg)
ollar, Change Lever (B)
pring, Cam Gear Plate
crew ⊕2×3 (Flywheel
olding Plate M'tg)
pring, Dumper
haft, Stopper

(TOP VIEW)

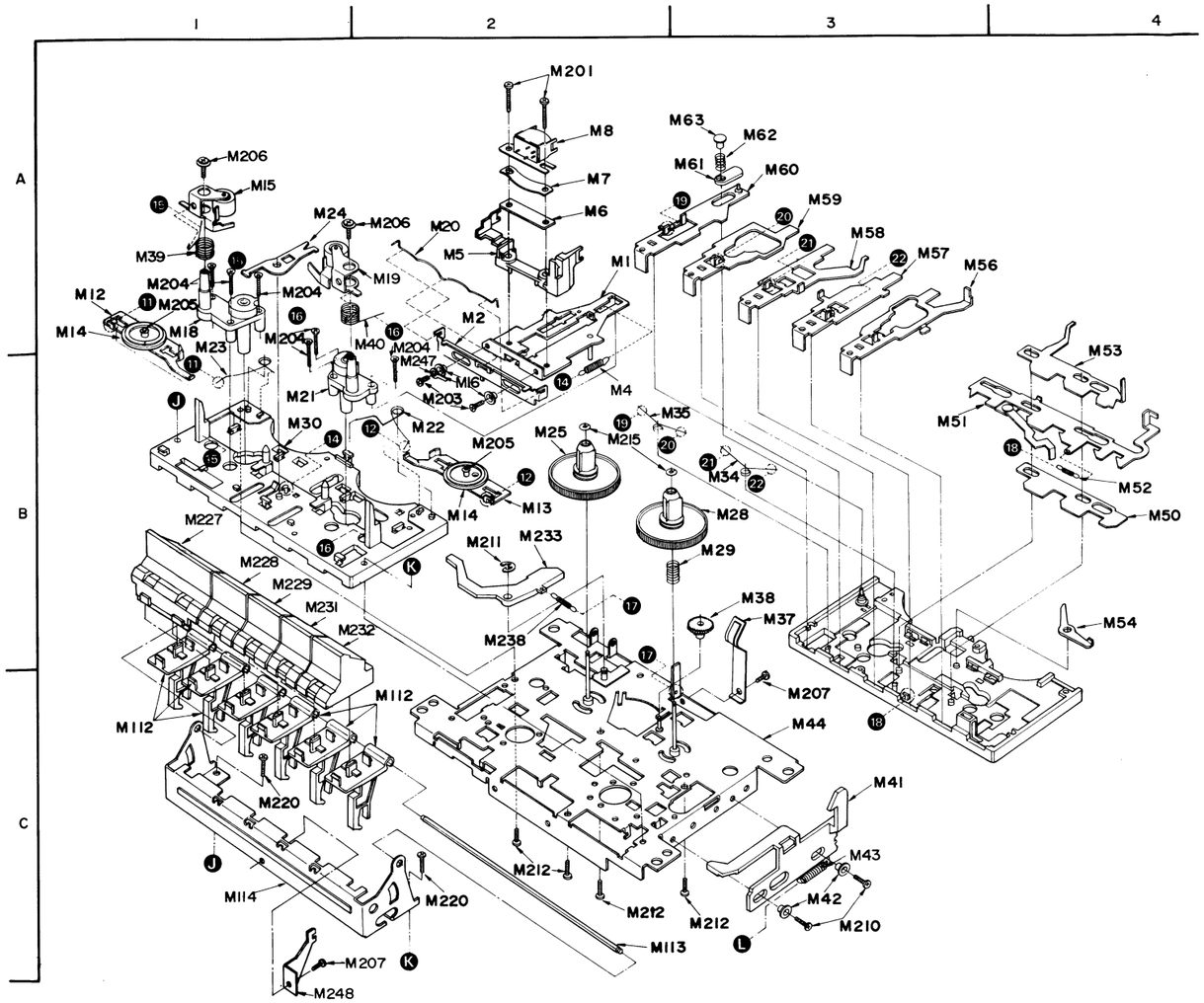


| | | |

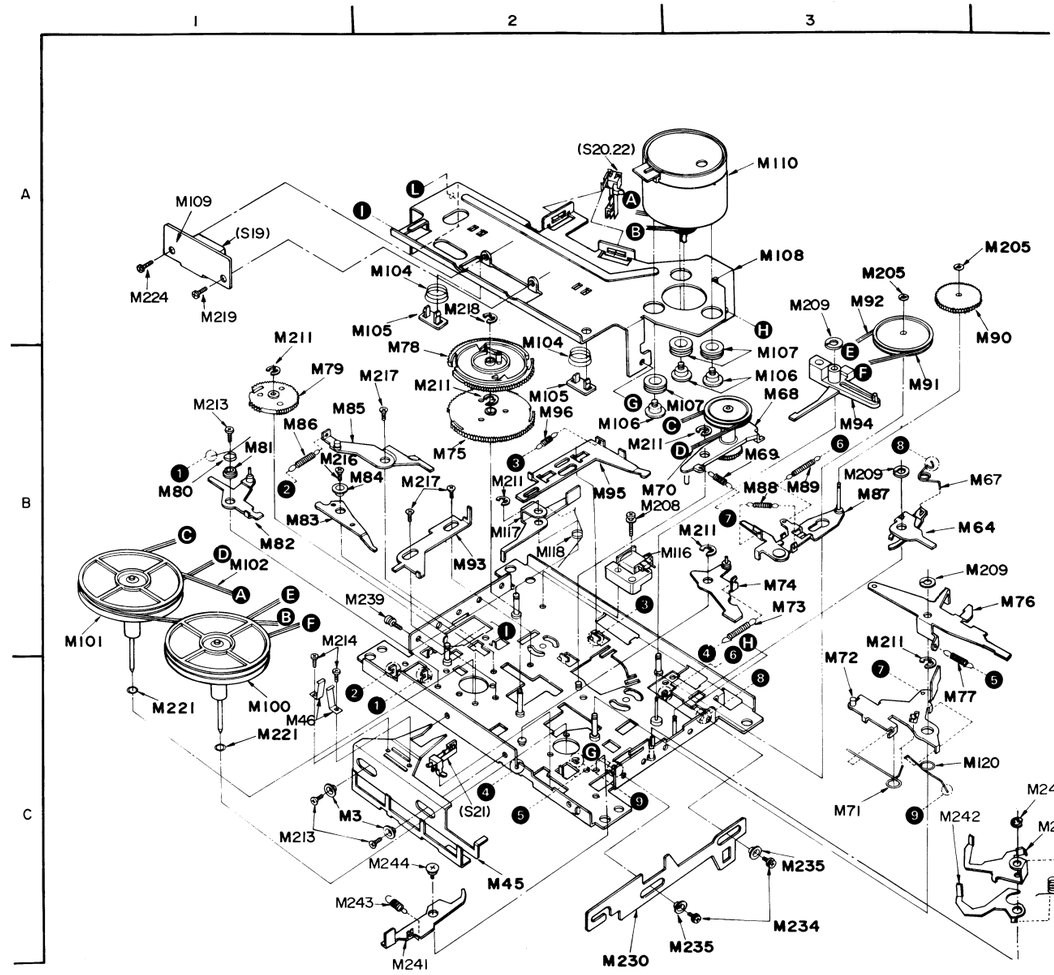
MECHANISM PARTS LOCATION (TAPE 2)

• PLAYBACK MECHANISM

(TOP VIEW)



(REAR VIEW)



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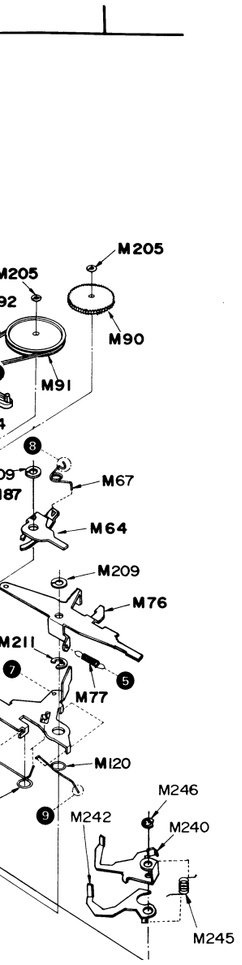
■ MECHANISM PARTS LIST

REPLACEMENT PARTS LIST

The letter in the circle after the part name indicates the color of the part.
Ⓢ... Silver

Ref. No.	Part No.	Part Name & Description
		MECHANICAL PARTS
M 1	RFU56Z	Head Panel Ass'y
M 2	RFY725ZA	Lever, C.H.P.
M 3	RFX128Z	Collar, Change Lever
M 4	RFS525Z	Spring, Head Panel
M 5	RFU57Z	Head Base
M 6	RFE207Z	Head Plate
M 7	RFS498Z	Spring Plate, Head
M 8	RJH4C06GZAM	Playback Head
M 12	RFD203Z	Trigger Roller Plate Ass'y (REV)
M 13	RFD204Z	Trigger Roller Plate Ass'y (FWD)
M 14	RFK15Z	Trigger Roller Ass'y
M 15	RFR33Z	Pinch Roller Arm (REV) Ass'y
M 16	RFX129Z	Collar (A), Change
M 18	RFE208Z	Pinch Roller Arm Base (REV)
M 19	RFR32Z	Pinch Roller Arm (FWD) Ass'y
M 20	RFS545Z	Spring, Pinch Roller
M 21	RFE209Z	Pinch Roller Arm Base (FWD)
M 22	RFS656ZA	Spring, Trigger Roller (FWD)
M 23	RFS502Z	Spring, Trigger Roller (REV)
M 24	RFY502Z	Lever, Head Base Control
M 25	RFJ63J	Reel Table Ass'y (REV)
M 28	RFJ64J	Reel Table Ass'y (FWD)
M 29	RFS546Z	Spring, Back Tension
M 30	RFU58Z	Button Base
M 34	RFS547Z	Spring (A), Button Lever
M 35	RFS508Z	Spring (B), Button Lever
M 37	RFS509Z	Spring, Cassette Holder
M 38	RFG94ZA	Gear, FF
M 39	RFS650ZA	Spring, Pinch Roller Arm (REV)
M 40	RFS658ZA	Spring, Pinch Roller Arm (FWD)
M 41	RFY722Z	Lever, Eject Slide
M 42	RFX120Z	Collar, Eject Slide Lever
M 43	RFS659ZA	Spring, Eject Slide Lever
M 44	RFU99ZA	Mechanism Base Ass'y
M 45	RFY505Z	Slide Lever Chassis
M 46	RFD224Z	Plate, Switch Spring
M 50	RFX146ZA	RC Stopper
M 51	RFY558Z	Plate, Pressure Button Operation
M 52	RFS549Z	Spring, Pressure Button Operation Plate
M 53	RFY526Z	Plate, Switch Operation
M 54	RFY559Z	Lever, Rew Button
M 56	RFY508Z	Lever, Play Button
M 57	RFY509Z	Lever, Rew Button
M 58	RFY510Z	Lever, FF Button
M 59	RFY511Z	Lever, Stop Button
M 60	RFY512Z	Lever Ass'y, Pause Button
M 61	RFY513Z	Lever, Pause
M 62	RFS512Z	Spring, Pause Lever
M 63	RFX122Z	Stopper, Pause Button Lever
M 64	RFY727ZA	Lever, Mode Change
M 67	RFS526Z	Spring (B), Mode Change Lever
M 68	RFK16Z	RF Clutch Ass'y
M 69	RFS660ZA	Spring, RF Clutch Ass'y
M 70	RFB59Z	Belt, FF
M 71	RFS514Z	Spring, Lift Arm Ass'y
M 72	RFY516Z	Lift Arm Ass'y
M 73	RFS551Z	Spring, Main Trigger Arm Ass'y
M 74	RFY517Z	Main Trigger Arm Ass'y
M 75	RFG75Z	Gear, Main
M 76	RFY728ZA	Change Lever Ass'y
M 77	RFS552Z	Spring, Change Lever Ass'y
M 78	RFG82Z	Gear, Change
M 79	RFG77Z	Gear, Head Plate Moving
M 80	RFS517Z	Spring, Trigger Arm
M 81	RFX148ZA	Collar, Trigger Arm
M 82	RFY519Z	Trigger Arm Ass'y
M 83	RFY520Z	Arm, Trigger
M 84	RFX123Z	Collar, Trigger Arm
M 85	RFY521Z	Play Moving Arm Ass'y
M 86	RFS518Z	Spring, Play Moving Arm Ass'y
M 87	RFG95ZA	Cam Gear Plate Ass'y
M 88	RFS553Z	Spring, Detector Plate
M 89	RFS520Z	Spring, Cam Gear Plate
M 90	RFG78Z	Gear, Cam
M 91	RFQ35Z	Pully
M 92	RFB60Z	Belt (A), Main
M 93	RFY522Z	Lever, RF
M 94	RFE211Z	Plate, Detector
M 95	RFY523Z	Lever, Control
M 96	RFS554Z	Spring, Control Lever
M 100	RFF45ZA	Flywheel Ass'y, Pulley Capstan
M 101	RFF46ZA	Flywheel Ass'y, Gear Capstan
M 102	RFB52Z	Belt (B), Main
M 104	RFS522Z	Spring, Damper
M 105	RFE212Z	Plate, Flywheel Cover
M 106	RFE213Z	Collar, Motor Ass'y
M 107	RFi32Z	Cushion, Motor Ass'y
M 108	RFD207Z	Plate, Flywheel Holding
M 109	RFU101ZA	Circuit Board, Switch
M 110	RFM100ZA	Motor Ass'y
M 112	RFY524Z	Lever, Operation
M 113	RFY726ZA	Shaft, Button Lever
M 114	RFD206Z	Button Frame
M 116	RFP16ZA	Plunger Ass'y
M 117	RFY561Z	Lever, TPS
M 118	RFS557Z	Spring, TPS Lever
M 120	RFS582Z	Spring, Lift Arm Ass'y
M 201	RFE214Z	Screw ⊕2×10 (R/P Head M'tg) (Azimuth)
M 203	XQC2+3	Screw ⊕2×3 (Head Panel Lever M'tg)
M 204	RFE215Z	Screw ⊕2×8.5 (Pinch Roller Arm Base M'tg)
M 205	RFE216Z	Poly Slider Washer φ1.2 (Trigger Roller Plate, etc. M'tg)
M 206	RFE327ZA	Screw ⊕2×6 (Reel Table Ass'y M'tg)
M 207	XSN2+3	Screw ⊕2×3 (Cassette Holder Spring M'tg)
M 208	RFE328ZA	Screw ⊕2×8 (Plunger Ass'y M'tg)
M 209	RFN152Z	Washer φ2.1, Detector Plate, etc. M'tg)
M 210	RFE221Z	Screw ⊕2×5 (Eject Slide Lever M'tg)
M 211	XUC25FT	E Ring (Head Plate Moving Gear M'tg)
M 212	RFE222Z	Screw ⊕2×6 (Button Base etc. M'tg)
M 213	RFE329ZA	Screw ⊕2×3 (Slide Lever Shassis M'tg)
M 214	RFE324Z	Screw ⊕2×1.5 (Switch Spring Plate M'tg)
M 215	RFE133Z	Poly Washer (Reel Table Ass'y M'tg)
M 216	XQN2+35	Screw ⊕2×3.5 (Trigger Arm M'tg)
M 217	RFE332ZA	Screw (RF Lever, etc. M'tg)
M 218	RFE330ZA	E Ring (Change Gear M'tg)
M 219	XSN2+3	Screw ⊕2×3 (Switch Circuit Board M'tg)
M 220	XQN2+7	Screw ⊕2×7 (Button Frame M'tg)
M 221	RFE218Z	Poly Washer (Flywheel)
M 224	XTB2+3	Screw ⊕2×3 (Switch Circuit Board M'tg)
M 227	RBC1021ZA	Button, Play
M 228	RBC1017ZA	Button, Rew
M 229	RBC1018ZA	Button, FF
M 230	RFY527Z	Change Lever (B)
M 231	RBC1019ZA	Button, Stop/Eject
M 232	RBC1020ZA	Button, Pause
M 233	RFY528Z	Lever (A), Change
M 234	XYN2+C4	Screw ⊕2×4 (Change Lever (B) M'tg)
M 235	RFX147ZA	Collar
M 238	RFS661ZA	Spring, Cam Gear Plate
M 239	XYN2+C3	Screw ⊕2×3 (Flywheel Holding Plate M'tg)
M 240	RFY729ZA	Lever, Selector
M 241	RFY730ZA	Lever, Detector
M 242	RFY731ZA	Lever, Stop
M 243	RFS661ZA	Spring (A) Detector Lever
M 244	RFE332ZA	Screw (Detector Lever)
M 245	RFS662ZA	Spring (B) Detector Lever
M 246	RFE333ZA	E Ring (Selector Lever)
M 247	RFS559Z	Spring, Dumper
M 248	RFD297ZA	Shaft, Stopper



71		77	64	67	76				
87	91			90					
				120					
211	205			209	205				
		242		246	240	245			

C · R PARTS LIST

Numbering System of Resistor

Example:

ERD	25	F	J	101
Type	Wattage	Shape	Tolerance	Value (100Ω)

ERJ	6G	C	J	2R2
Type	Wattage	Shape	Tolerance	Value (2.2Ω)

Resistor Type		Wattage	Tolerance
ERD:	Carbon Resistor	10 : 1/8W	F : ±1%
ERC:	Solid Resistor	25 : 1/4W	G : ±2%
ERF:	Incombustible Box-Shaped Wire-Wound Resistor	50 : 1/2W	J : ±5%
		18 : 1/8W	K : ±10%
		14 : 1/4W	H : ±20%
		12 : 1/2W	
ERG:	Metal Oxide-Film Resistor	1 : 1W	
		2 : 2W	
ERM:	Wire-Wound Resistor	3 : 3W	
		S1 : 1/2W	
ERO:	Superstable Metal Film Resistor	S2 : 1/4W	
		6G : 1/10W	
		8G : 1/8W	
ERX:	Metal-Film Resistor		
RRJ: ERJ:	Chip Resistor		

※ Capacity are in microtarads (μF) unless specified otherwise, P=Pico-farads.
※ Resistance are in ohms (Ω), unless specified otherwise, 1K=1,000Ω, 1M=1,000KΩ

Numbering System of Capacitor

Example:

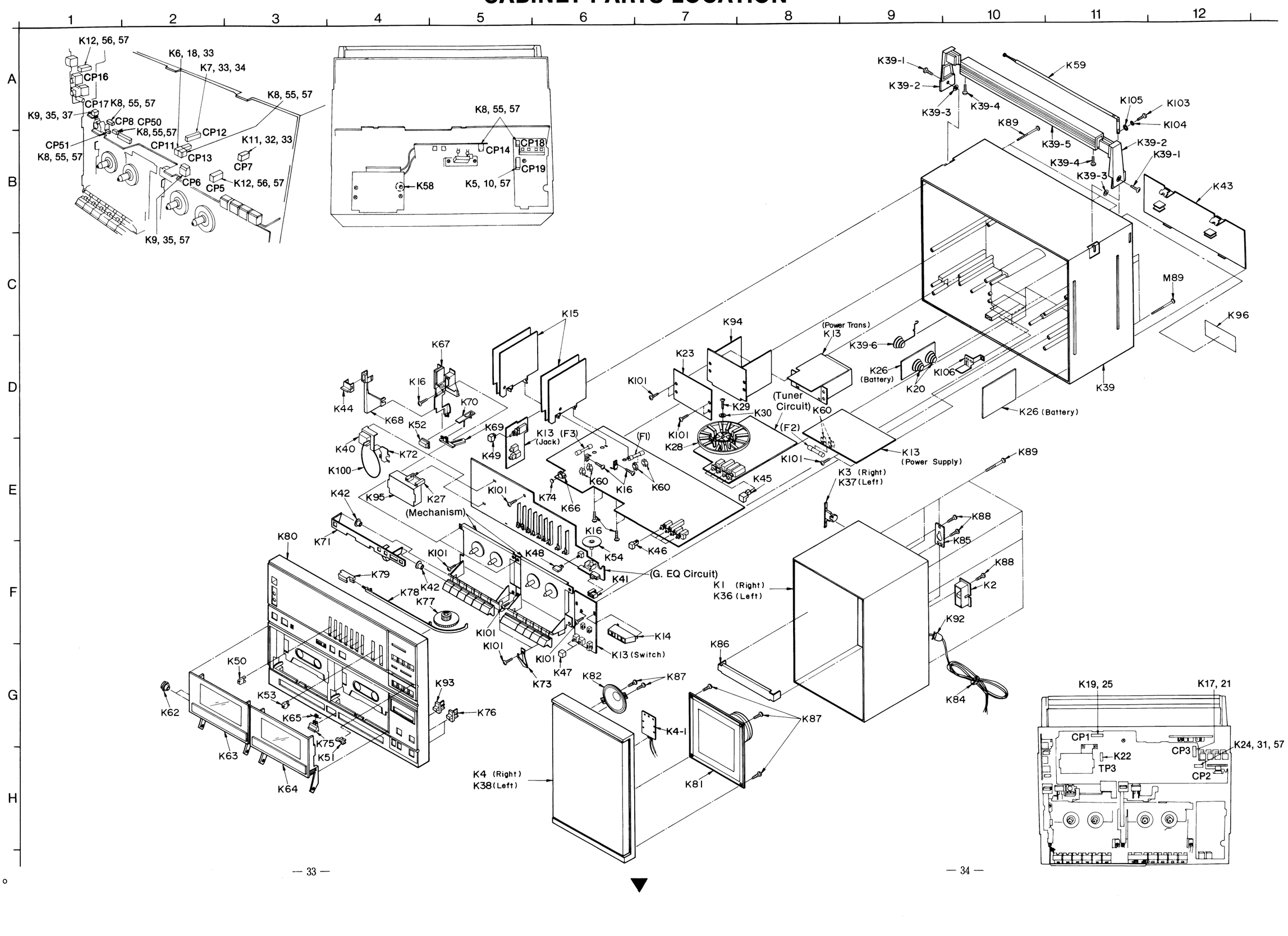
ECKD	1H	102	Z	F
Type	Voltage	Value (1000pF)	Tolerance	Peculiarity

ECEA	50	M	R47
Type	Voltage	Peculiarity	Value (0.47μF)

Capacitor Type		Voltage	Tolerance
ECCD:	Ceramic Capacitor (Chitacon)	(ECCD, ECKD Type) 1H : 500V DC 2H : 500V DC	K : ±10% M : ±20% Z : +80% −20% J : ±5% G : ±2% F : ±1% C : ±0.25pF D : ±0.5pF F : ±1pF
ECKD:	Ceramic Capacitor (Chitabari)	(ECFD Type) C : 12V DC D : 25V DC E : 50V DC	
ECFD:	Semiconductor Ceramic Capacitor	(ECQ Type) 05 : 50WV DC 1 : 100WV DC	
ECE□:	Electrolytic Capacitor	(ECE, ECS Type) 0G : 4V 0J : 6.3V 1A : 10V 1C : 16V 1E : 25V 1V : 35V 1H : 50V 1J : 63V 2A : 100V	
ECS□:	Tantalum Fixed Electrolytic Capacitor		
ECQ□:	Polystyrenc Film Capacitor		
ECQS:	Polystyrene Film Capacitor		
ECQS:	Polypropylene Film Capacitor		
ECQV:	T.F Capacitor		
ECU□: RCU□:	Chip Capacitor		
ECBT:	Cylindrical Ceramic Capacitor		

Ref. No.	Part No.
	CAPACITORS
C 1, 2, 7, 17, 25, 146, 246	ECKD1H102KB
C 3	RCBS1H330JL
C 4	RCBS1H100JC
C 5	RCBS1H5R6KC
C 6, 13, 15	ECCD1H180K
C 8	ECCD1H070DC
C 9	ECCD1H020C
C 11	ECKT1H103MD
C 12	RCBS1H3R9KC
C 14, 26, 27, 31, 34, 35, 40, 181, 183, 281, 283	ECFT1C223MD
C 16	RCBS1H470JL
C 18	ECCD1H150K
C 19, 354	RCBS1C822MY
C 20	RCBS1H6R8KCY
C 21	RCBS1H4R7KCY
C 22	ECQP2A361JZ
C 23	ECQP2A152JZ
C 24	ECQP2A472JZ
C 28, 29, 33, 46, 148, 153, 161, 248, 253, 261, 347, 349, 355, 356, 359, 366, 369	ECEA1HU010
C 30	ECEA1HU2R2
C 32, 39, 42, 363	ECFT1C103MD
C 36	ECCD1H331K
C 37	ECEA0JU221
C 38	ECEA1HU4R7
C 41, 156, 256	ECEA1CU100
C 43, 162, 262, 353	ECFT1C333MD
C 44	ECQP2A102JZ
C 45, 147, 173, 247, 273	ECEA1HU0R1
C 101, 201	RCBS1H331KB
C 102, 103, 118, 121, 136, 144, 149, 202, 203, 218, 221, 236, 244, 249, 307, 313, 314, 370	ECEA1HU010
C 104, 110, 119, 134, 142, 204, 210, 219, 234, 242	RCBS1H101KB
C 105, 106, 107, 205, 206, 207	RCBS1H471KB
C 108, 109, 208, 209, 308	ECEA0JU470
C 111, 113, 135, 138, 139, 141, 211, 213, 235, 238, 239, 241, 338, 341	ECEA1EU4R7
C 112, 114, 115, 116, 133, 212, 214, 215, 216, 233, 358	ECFT1C333KDY
C 117, 217	RCBS1H821KB
C 120, 220, 309	RCBS1H102KB
C 122, 127, 137, 185, 222, 227, 237, 285, 310, 322, 332, 333, 334, 336, 337	ECEA1CU100
C 123, 143, 145, 223, 243, 245, 304, 329, 331	ECEA1HU0R1
C 124, 126, 224, 226, 317, 330, 335	ECFT1C473KD
C 125, 225	ECEA1HUR33
C 128, 228	ECFT1C223KD
C 129, 229	RCBS1C472KX
C 131, 231	RCBS1C682KX
C 132, 232	RCBS1C562KXY
C 152, 168, 169, 252, 268, 269, 303, 315, 324, 343, 350, 360, 375	RCBS1C103NY
C 154	RCBS1H471KBY
C 155, 163, 255, 263, 302, 346	ECEA0JU101
C 157, 257	ECEA0JU221B
C 158, 258	ECEA1EU221
C 159, 259, 319, 321	RCBS1C222MX
C 164, 264	ECEA1HUR47
C 165, 265	ECFT1C153MD
C 166, 266	ECEA1HUR22
C 167, 267	ECKD1H682MD
C 171, 172, 271, 272, 323	ECEA1CU101
C 174, 364	ECKD1H332MD
C 175, 275	ECKD1H103MD
C 176, 276, 352	ECFT1C473MD
C 177, 178, 277, 278	ECQP1H224JZ
C 179, 279, 361	ECKD1H222MD
C 182, 282	ECKD1H152MD
C 184, 284	ECEA1HN3R3S
C 186, 187, 286, 287	RCBS1H220JL
C 254	ECKD1H471KB
C 274	RCBS1C332KXY
C 301	ECEA0JU102
C 305	ECFT1C683MD
C 306	ECQP2A152JZ
C 311, 316, 318, 325, 326	ECEA1AU101
C 312	ECQP2A103JZ
C 327	ECEA1AU102
C 328, 342	ECEA1AU221
C 340	ECEA0JU471
C 348	ECEA1AU471B
C 357	ECEA1CU471
C 362	ECEA1EU472
C 365, 368	ECKD1H681KB
C 367	ECCT1H221K
C 371, 372, 373, 374	ECKD1H103ZF
	RESISTORS
R 1, 146, 150, 246, 250, 387, 391, 397, 400, 402	ERDS2TJ104
R 2, 4, 7, 9, 18	ERDS2TJ470
R 3, 8, 408	ERDS2TJ101
R 5, 378	ERDS2TJ474
R 6	ERDS2TJ471
R 10, 11	ERDS2TJ562
R 12, 379, 406, 407	ERDS2TJ102
R 13, 149, 249	ERDS2TJ821
R 14, 15	ERDS2TJ222
R 16, 142, 242	ERDS2TJ472
R 17	ERDS2TJ822
R 19, 20, 148, 152, 248, 252	ERDS2TJ682
R 21, 368	ERDS2TJ221
R 101, 129, 201, 229	ERDS2TJ473
R 102, 202, 324, 332, 383, 384, 425, 429	ERDS2TJ152
R 103, 120, 131, 133, 203, 220, 231, 233, 305, 312, 314, 322, 323, 326, 328, 329, 331, 335, 338, 342, 358, 363, 390, 417, 423	ERDS2TJ472
R 104, 107, 143, 204, 207, 243, 352, 364	ERDS2TJ470
R 105, 108, 205, 208	ERDS2TJ823
R 106, 109, 206, 209, 426	ERDS2TJ392
R 110, 111, 210, 211, 318, 418	ERDS2TJ222
R 112, 117, 128, 140, 212, 217, 228, 240, 430	ERDS2TJ332
R 113, 115, 213, 215	ERDS2TJ182
R 114, 214, 336, 337	ERDS2TJ682
R 116, 119, 216, 219, 301, 306, 341, 345, 346, 347, 348, 353, 356, 359, 385, 386, 427	ERDS2TJ103
R 118, 218	ERDS2TJ153
R 121, 135, 221, 235, 308, 315, 375, 376	ERDS2TJ105
R 122, 222, 316, 366	ERDS2TJ331
R 123, 126, 223, 226, 330, 420	ERDS2TJ272
R 124, 224	ERDS2TJ683
R 125, 225	ERDS2TJ274
R 127, 227, 339, 340, 392, 424	ERDS2TJ122
R 130, 230	ERDS2TJ680
R 132, 232	ERDS2TJ822
R 134, 234, 302, 343, 344	ERDS2TJ821
R 136, 236, 304, 309, 311, 319, 334, 350, 351, 355, 367, 370, 393	ERDS2TJ102
R 137, 139, 237, 239, 362, 421	ERDS2TJ333
R 138, 238, 317, 349, 357, 360, 361, 422	ERDS2TJ104
R 141, 241	ERDS2TJ182
R 144, 145, 244, 245, 313	ERDS2TJ1R0
R 147, 151, 247, 251	ERDS2TJ331
R 153, 253, 307, 310, 320, 333, 365	ERDS2TJ221
R 154, 254	ERDS2TJ333
R 155, 255	ERDS2TJ393
R 303, 321, 325, 369	ERDS2TJ471
R 371, 372, 373, 374	ERDS2TJ223
R 377	ERD25TJ106
R 380	ERDS2TJ220
R 381, 382, 388, 389, 394, 395, 396, 398, 399, 401	ERDS2TJ103
R 403, 404, 405, 409, 410, 412, 413, 414, 415, 416	ERDS2TJ121
R 411	ERDS2TJ153
R 428	ERDS2TJ101

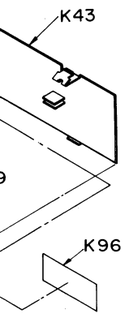
CABINET PARTS LOCATION

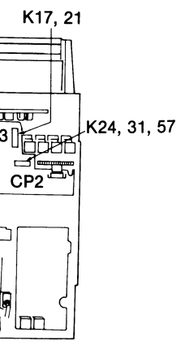


Notes:

1. The letter in round column indicates t
   (X) .....For Asia, L and Africa
   (L).....For Austral
   (XC).....For Saudi A
   (XF).....For Newze
   (ME).....For AAFES
   (MF).....For AAFES
2. The letter in the ci indicates the color Ⓚ... Black, Ⓢ... Silv

Ref. No.	Part No.	Part
	CABINET PAR	
K 1	RKF862ZA	Speake
K 2	RKE512Z	Holder,
K 3	RGE76X	Stoppe
K 4	RYM2XCW200FX	Speake
K 4-1	RWEXCW200LZ	Speake
K 5	RJS4L3Z	Socket
K 6	RJP10G10ZB	Plug (C
K 7	RJP12G10Z	Plug (C
K 8	RJP2G4Y	Plug (C Pin)
K 9	RJP3G4Y	Plug (C
K 10	RJP4G4Y	Plug (C
K 11	RJP5G10Z	Plug (C
K 12	RJP5G4Y	Plug (C
K 13	RUP2183ZAN	P.C.B. Supply
K 14	RMP257ZAR	Holder
K 15	RMY225ZA	Heat S
K 16	XTV3+8B	Screw Transis
K 17	2JSACW200ZA1	Socket
K 18	RJS10L4ZA	Socket
K 19	2JSACW200ZA2	Socket
K 20	RJC511Z	Termin
K 21	RJP11G18Z	Plug (C
K 22	RJP3G10Z	Plug (T
K 23	RMC1109ZA	Shield
K 24	RJP6G4Y	Plug (C
K 25	RJP9G20Z	Plug (C
K 26	RUP2184ZAN	P.C.B.
K 27	RMP258ZAR	Holder (IND)
K 28	RDG5712Z	Drum,
K 29	XSN26+6	Screw M'tg)
K 30	XWA26B	Washe
K 31	RJS6L3Z	Socket
K 32	RJS5L4Z	Socket
K 33	RJT807Z	Termin
K 34	RJS12L4Z	Socket
K 35	RJS3L3Z	Socket
K 36	RKF862YA	Speak
K 37	RGE76Y	Stoppe
K 38	RYM3XCW200FX	Speak
K 39 (XC)	RYF1XCW200FC	Rear C
K 39 (X) (ME) (MF)	RYF1XCW200FX	Rear C
K 39 (L) (XF)	RYF1XCW200FL	Rear C
K 39-1	RHK22Y	Screw
K 39-2	RKX367ZA	Arm, H
K 39-3	RNW351Z	Washe
K 39-4	XTC3+10CFY	Screw





Notes:

1. The letter in round brackets in the Ref. No. column indicates the shipping destination.
   (X) .....For Asia, Latin America, Middle East and Africa areas.
   (L).....For Australia.
   (XC).....For Saudi Arabia.
   (XF).....For Newzealand.
   (ME).....For AAFES EUROPE
   (MF).....For AAFES PACIFIC
2. The letter in the circle after the part name indicates the color of the part.
   Ⓚ... Black, Ⓢ... Silver, Ⓗ... Gray, Ⓡ... Red

REPLACEMENT PARTS LIST

Important safety notice
Components identified by ⚠ mark have special characteristics important for safety.
When replacing any of these components, use only manufacturer's specified parts.

Ref. No.	Part No.	Part Name & Description
		CABINET PARTS
K 1	RKF862ZA	Speaker Box (R) Ⓚ
K 2	RKE512Z	Holder, Speaker Cord Ⓚ
K 3	RGE76X	Stopper (R) Ⓚ
K 4	RYM2XCW200FX	Speaker Grill Ass'y (R) Ⓚ
K 4-1	RWEXCW200LZ	Speaker (Tweeter)
K 5	RJS4L3Z	Socket (CS19/4 Pin)
K 6	RJP10G10ZB	Plug (CP11/10 Pin)
K 7	RJP12G10Z	Plug (CP12/12 Pin)
K 8	RJP2G4Y	Plug (CP8, 13, 14, 18, 50, 51/2 Pin)
K 9	RJP3G4Y	Plug (CP6, 17/3 Pin)
K 10	RJP4G4Y	Plug (CP19/4 Pin)
K 11	RJP5G10Z	Plug (CP7/5 Pin)
K 12	RJP5G4Y	Plug (CP5, 16/5 Pin)
K 13	RUP2183ZAN	P.C.B. (Jack, Switch Power Supply, Power Trans)
K 14	RMP257ZAR	Holder (FWD, REV IND)
K 15	RMY225ZA	Heat Sink (IC102, 202)
K 16	XTV3+8B	Screw ⊕3×8 (Heat Sink, Transistor M'tg)
K 17	2JSACW200ZA1	Socket (CS3/11 Pin)
K 18	RJS10L4ZA	Socket (CS11/10 Pin)
K 19	2JSACW200ZA2	Socket (CS1/9 Pin)
K 20	RJC511Z	Terminal, Battery (−)
K 21	RJP11G18Z	Plug (CP3/11 Pin)
K 22	RJP3G10Z	Plug (TP3/3 Pin)
K 23	RMC1109ZA	Shield Plate
K 24	RJP6G4Y	Plug (CP2/6 Pin)
K 25	RJP9G20Z	Plug (CP1/9 Pin)
K 26	RUP2184ZAN	P.C.B. (Battery)
K 27	RMP258ZAR	Holder (Spectrum Analyzer IND)
K 28	RDG5712Z	Drum, Dial
K 29	XSN26+6	Screw ⊕2.6×6 (Dial Drum M'tg)
K 30	XWA26B	Washer ϕ2.6 (Dial Drum M'tg)
K 31	RJS6L3Z	Socket (CP2/6 Pin)
K 32	RJS5L4Z	Socket (CP7/5 Pin)
K 33	RJT807Z	Terminal, Socket
K 34	RJS12L4Z	Socket (CS12/12 Pin)
K 35	RJS3L3Z	Socket (CS6, 17/3 Pin)
K 36	RKF862YA	Speaker Box (L) Ⓚ
K 37	RGE76Y	Stopper (L) Ⓚ
K 38	RYM3XCW200FX	Speaker Grill Ass'y (L) Ⓚ
K 39 (XC)	RYF1XCW200FC	Rear Cabinet Ass'y Ⓚ
K 39 (X) (ME) (MF)	RYF1XCW200FX	Rear Cabinet Ass'y Ⓚ
K 39 (L) (XF)	RYF1XCW200FL	Rear Cabinet Ass'y Ⓚ
K 39-1	RHK22Y	Screw (Handle Arm M'tg)
K 39-2	RKX367ZA	Arm, Handle Ⓢ
K 39-3	RNW351Z	Washer, Handle Arm
K 39-4	XTC3+10CFY	Screw ⊕3×10 (Handle M'tg)
K 39-5	RKX368ZA	Handle Ⓚ
K 39-6	RJC931Z	Terminal, Battery (+/−)
K 40	RSE216ZA	Counter
K 41	RHR1334ZA	Holder, Volume Knob
K 42	RHR3106ZA	Holder, One Touch Dubbing Angle
K 43	RKK273Z	Battery Cover Ⓚ
K 44	RBC1009ZA-0	Button, Direction Ⓗ
K 45	RBC1010Z	Button, Band Ⓢ
K 46	RBC1011Z	Button, Function, Equalizer Mode Ⓢ
K 47	RBC1012Z	Button, Relay Play, Dolby NR Ⓢ
K 48	RBC1013Z	Button, FM Mode/B.P. Ⓢ
K 49	RBC1014ZA-0	Button, Power Ⓢ
K 50	RBD248Y	Knob, G. EQ Ⓗ
K 51	RBD425Z	Knob, Volume Ⓢ
K 52	RBD427ZA-0	Knob, Reverse Mode Ⓢ
K 53	RBD442ZA-0	Knob, Mixing Level, Balance Ⓗ
K 54	RBT287ZA-0	Knob, Fine Tuning Ⓗ
K 55	RJS2L3Z	Socket (CP8, 13, 14, 18, 50, 51/2 Pin)
K 56	RJS5L3Z	Socket (CP5, 16/5 Pin)
K 57	RJT707Z	Terminal, Socket
K 58	RJT514Z	Terminal, Earth
K 59	XEARR225EAY	Telescopic Antenna
K 60	RJF28Z	Holder, Fuse
K 62	RDG5782Z	Gear, Dumper
K 63	RYQ1XCW200FX	Cassette Lid Ass'y, (TAPE 1) Ⓚ
K 64	RYQ2XCW200FX	Cassette Lid Ass'y, (TAPE 2) Ⓚ
K 65	RUQ51ZA	Spring, One Touch Dubbing Button
K 66	RJM164Z	Condenser Microphone
K 67	RUA734ZAR	Shassis, Lever
K 68	RUB456ZAR	Lever, Reverse Mode Slide
K 69	RUB457ZAR	Lever, Reverse Mode
K 70	RUB458ZAR	Lever, Direction Mode
K 71	RUL867ZB	Angle, One Touch Dubbing
K 72	RUL868ZA	Angle, Counter
K 73	RUS664YA	Spring, Cassette Lid
K 74	RHG728Z	Rubber, Microphone
K 75	RBC1043ZA-0	Button, One Touch Dubbing Ⓡ
K 76	RBD426ZA-0	Knob, Tape Selector (TAPE 2), Dubbing Mode
K 77	RBT282ZA	Knob, Tuning Ⓗ
K 78	RDE165ZA	Rack, Dial Pointer
K 79	RDP255ZAR	Pointer, Dial
K 80	RYM1XCW200FX	Front Cabinet Ass'y Ⓚ
K 81	EAS12SL05A	Speaker (Woofer)
K 82	RAS5PH08ZA-D	Speaker (Squauker)
K 84	RJE123Y	Speaker Cord
K 85	RUL661Z	Speaker Wall Mounts
K 86	RUL869ZA	Angle, Speaker Box
K 87	XTV3+10G	Screw ⊕3×10 (Speaker M'tg)
K 88	XTV3+12GFY	Screw ⊕3×12 (Speaker Wall Mounts, Speaker Cord Holder M'tg)
K 89	XTV3+50G	Speaker ⊕3×50 (Cabinet Speaker Box M'tg)
K 92	RHG3011Z	Bushing, Speaker Cord
K 93	RBD426YA	Knob, Tape Selector (TAPE 1) Ⓗ
K 94	RMC1088ZB	Shield Plate
K 95	RGK1294ZA	Ornament, Spectrum Analyzer Ⓚ
K 96 (L) (XF)	RGT1252ZA	Name Plate Ⓚ
K 96 (ME) (MF)	RGT1252WA	Name Plate Ⓚ
K 100	QDB0288	Belt, Counter
K 101	XTV3+12G	Screw ⊕3×12 (Mechanism, P.C.B., etc. M'tg)
K 103	XSN3+12S	Screw ⊕3×12 (Telescopic Antenna M'tg)
K 104	XWA3B	Washer ϕ3, Telescopic Antenna M'tg
K 105	XWG3	Washer ϕ3, Telescopic Antenna M'tg
K 106	RJT1070ZA	Terminal, Antenna
		ACCESSORIES
A 1 (X) (ME) (MF)	RJA21Z	Power Cord, AC ⚠
A 1 (L) (XF)	RJA26Z	Power Cord, AC ⚠
A 1 (XC)	RJA103Z	Power Cord, AC ⚠
A 2 (X) (XC) (ME) (MF)	RJP120ZS	Plug, AC Adaptor ⚠
A 3 (X) (L) (XC) (XF)	RJN48Z	Cassette Tape
A 4 (X) (L) (XC) (XF)	RQX4875ZA	Operating Instructions
A 4 (ME) (MF)	RQX4911ZA	Operating Instructions
		PACKINGS
P 1	RPH546ZA	Polyethylene Cover (Speaker)
P 2	RPH545ZA	Polyethylene Cover (Tuner/Deck)
P 3	RPN9540ZA	Pad
P 4 (X) (L) (XC) (XF)	RPK2364ZA	Gift Box
P 4 (ME) (MF)	RPK2409ZA	Gift Box
P 5	RPN5145ZA	Sheet

GAD H.Y **X L XC XF ME MF**

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